

AMERICAN ARTISAN

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In This Issue

- The first of two articles providing a background for negotiations on pensions begins on Page 75.

- When the 1950 Census figures are released valuable local market data will be available. Page 68.

- Supplying heat at the source of heat loss is a fundamental principle of warm air baseboard heating. Page 81.

- Stainless steel roof drainage equipment offers beauty and durability. Page 101.

The Cover Picture

Arthur C. Willard, president emeritus, University of Illinois, receives NWAH&ACA plaque commemorating his service to the industry. F. L. Meyer, Peoria, makes the presentation.



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SHEET METAL CONTRACTING



Member—Audit Bureau of Circulations
Member—Associated Business Papers



Merged with American Artisan are "Warm Air Heating" and "Furnaces and Sheet Metals"

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EDITOR

JOHN E. PETERSON

ASSOCIATE EDITOR

JOHN McCULLOUGH

ADVERTISING STAFF

WALLACE J. OSBORN

New York City

MURRAY HILL 9-8293

ROBERT A. JACK

Cleveland

YELLOWSTONE 2-1540

JAMES D. THOMAS

GEORGE C. CUTLER

Chicago

STATE 2-6916

R. PAYNE WETSTEIN

Los Angeles—DUNkirk 8-2286

San Francisco—YUKon 6-2522

Portland—ATwater 4-0707

Published monthly by Keeney Publishing Company, 6 N. Michigan Ave., Chicago 2, Ill., U.S.A.
Copyright 1950 by Keeney Publishing Company.

Publisher—FRANK P. KEENEY

Manager—CHARLES E. PRICE

Production Manager—L. A. DOYLE

Circulation Director—FRANK S. EASTER

Yearly Subscription Price—U.S. and possessions, \$1.00; Canada, Cuba, Mexico, South America, Central America, \$4.00; Others, \$6.00. Single copies, U.S. and possessions, \$1.50. Back numbers, \$6.00. January, 1950. Directory Issue, \$1.50 per copy. *Change in Address*. Report new and old address to publisher and local post office, deadline, 2nd 20th of preceding month. Entered as second-class matter, July 29, 1912, at the post office at Chicago, Illinois, under the Act of March 3, 1879. Additional entry at Milwaukee, Wisconsin.

Founded 1864

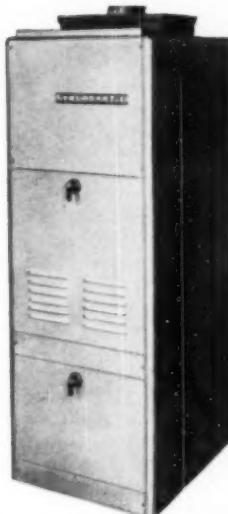
JUNE, 1950

Volume 87, No. 6

AMERICAN ARTISAN, JUNE, 1950

SYNCHROMATIC TOPS

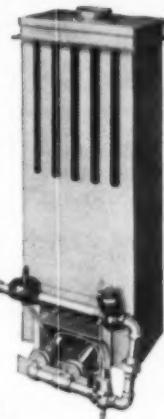
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*the editor's
notebook*

Finger on the Pulse

A survey of consumer finances sponsored by the Federal Reserve Board indicates consumer plans to buy houses in the current year—newly built and existing houses combined—were slightly larger in early 1950 than in early 1949. Plans to purchase newly constructed homes were the same or somewhat greater than in 1949 while there was no change or a slight decline in reported intentions to purchase existing homes.

Preliminary survey data justify an estimate of over 1 million consumers having definite plans to buy new houses in 1950. Compared with a year ago, a somewhat stronger demand was evident for units priced below \$10,000 while little change in purchasing intentions was noted for homes priced above this level.

About as many consumers indicated intentions to buy new homes in 1951 as reported such intentions for 1950. Purchase plans for 1951 were more frequently uncertain than those pertaining to 1950, reflecting in part at least the remoteness of the time period.

The 1950 Consumer Analysis of the Greater Milwaukee Market, compiled and published by the Milwaukee Journal shows 70.7 per cent of the families of the area burn solid fuel, 29.2 per cent oil, and 4.8 per cent gas.

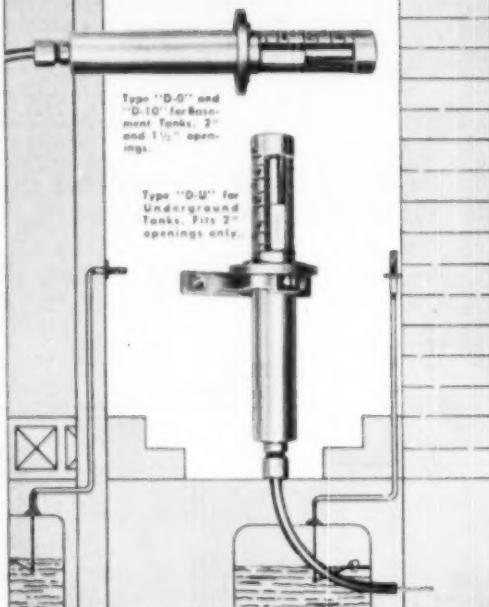
In 1946, 86 per cent burned solid fuel, 12.4 per cent oil, and 2.1 per cent gas.

Heating Control Visualized

A life-size plastic man that demonstrates bodily reactions to temperature changes is a feature of a touring Minne-

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apolis-Honeywell display designed to illustrate the human-like sensitivity of automatic control in producing indoor comfort.

The model stand nearly six feet high and is made of two layers of transparent lucite. It has two lighting systems, one blue and one red, to represent the body's network of nerves and arteries.

The display demonstrates how the thermostat of a heating control system duplicates the reaction of the brain to temperature change. An increase in warmth, for example, will activate the brain, sending a signal along the nervous system. This is shown by an increase in the intensity of the blue light. In turn, this alerts the circulatory system which increases its supply of blood to the body, indicated by the brightness of the red lights. These reactions are duplicated by a heating system installed in a mock schoolroom linked to the plastic man. Here the thermostat transmits the signal of temperature change (blue light) by wires (nervous system) to the piping (circulatory system) shown by red lights.

For Your Local Papers

Here's a release, issued by the National Warm Air Heating and Air Conditioning Association, especially suitable for warm air heating contractors to submit to their local papers. Whether a basementless house is to be heated with a conventional or floor system, the construction of the slab has a material influence on Indoor Comfort.

Simply retype the release double spaced and insert your name in an appropriate place;

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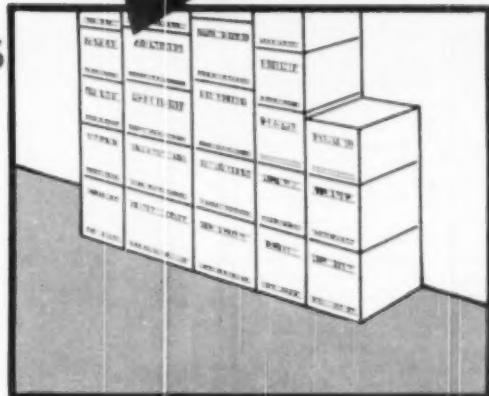
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MINNEAPOLIS - OMAHA

*the editor's
notebook*

submit it to your local editor and watch and wait for the results. Here it is:

Be sure the slab is dry! This warning is issued by the National Warm Air Heating and Air Conditioning Association to builders and buyers of the new ranch type, basementless houses constructed on concrete slabs.

No slab, heated or not, should be constructed on wet ground. In its recently published manual, entitled Warm Air Perimeter Heating, a newly introduced warm air perimeter heating system for concrete slab houses is described and gives suggested procedures for designing and installing this type of system.

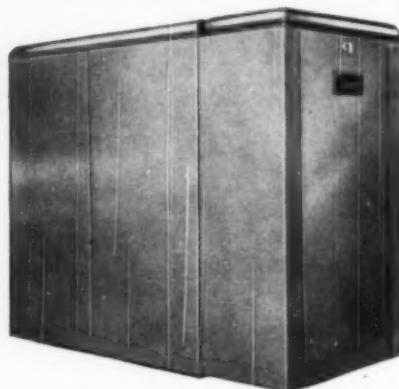
At first glance, it may appear strange for heating engineers to counsel on building methods. However, the modern trend is to incorporate the heating system into one or more of the various structural elements of the home. In the case of warm air perimeter heating, the system is entirely housed within the concrete floor slab itself. Heated air from a forced warm air furnace is delivered into a duct system imbedded in the concrete at the outer edges of the slab and provides a source of radiant heat at the point of greatest heat loss in the house—the outer walls. Floor or side wall registers, opening into these perimeter ducts and located for the most part under the windows of the house, deliver the warmed air directly into the house itself.

Because the concrete floor slab also serves as the heating system in the perimeter and similar methods of heating, it is vitally important that the slab be properly insulated and waterproofed. Field research investigation by the National Warm Air Heating and Air Conditioning Association has proved that the cost of operating any type of slab heating system will depend entirely on the attention given to the location and preparation of the concrete slab.

If it is installed in a house on a wet site with standing water near the foundation during a good part of the heating season, operating costs will be high. Flowers may grow around the foundation dur-



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Sycamore, Illinois
Originally Established in 1898
Incorporated in 1928

*the editor's
notebook*

ing the winter. It is doubtful that even the most enthusiastic gardener will be in favor of spending his house heating money in this manner.

According to the association, the slab should be constructed on a well-drained site where the drainage is away from the slab and where there is no standing water at any time of the year. The finished surface of the slab should not be less than six inches above the established grade surface. The ground immediately around the foundations may be terraced if desired in order to provide additional drainage for surface water away from the slab.

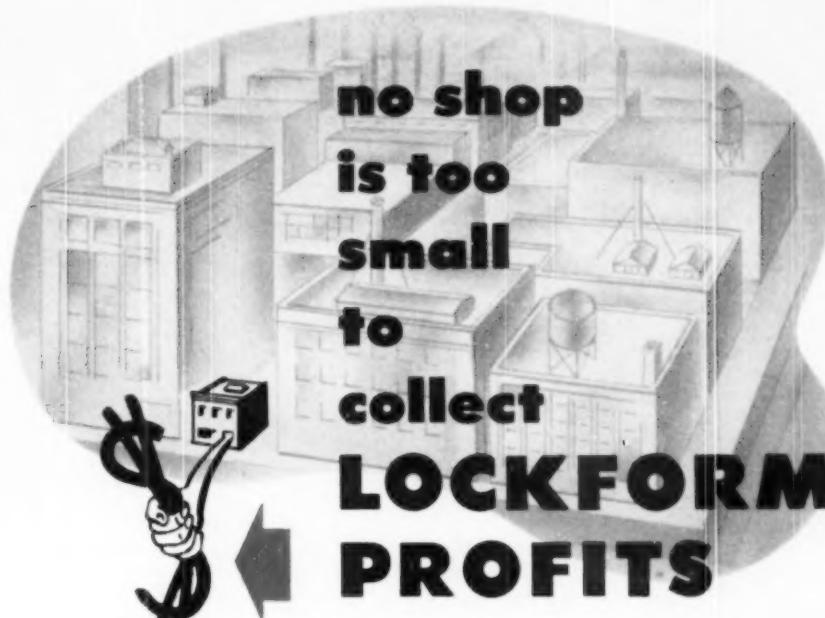
A suitable porous fill and waterproof membrane as a moisture barrier beneath the slab are required by FHA and highly necessary with a warm air perimeter heating system. The bottom of the slab must be kept dry to avoid excessive heat losses into the ground and prevent high heating costs.

Insulation must also be placed between the edge of the slab and the foundation and extend completely around the slab to reduce heat losses from the slab edge. Two inch thick insulation is recommended for good construction but one inch thickness is acceptable. Insulation should extend downward a minimum of 14 to 18 inches. The insulation material used must be completely waterproof and termite proof, and of a permanent type which will not disintegrate after a few years.

Dunwoody Alumni

The Alumni Association and Fund of Dunwoody Industrial Institute, Minneapolis, Minnesota, is starting a drive in July to contact the alumni of the school, tradesmen who are now scattered throughout the country working in all kinds of trades.

According to Morgan H. Potter, president of the alumni group, the plan is to reach at least one half of the 120,000 alumni who have taken training at Dunwoody. "We want



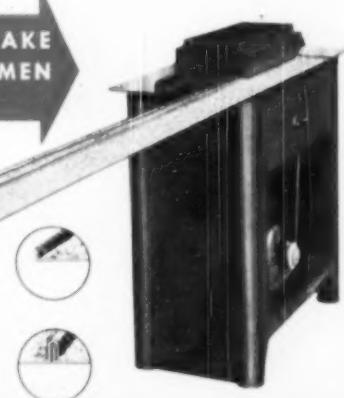
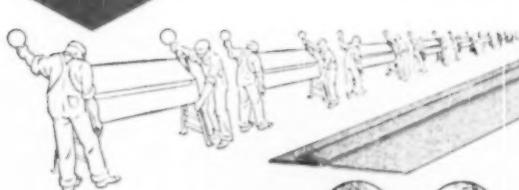
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small
to
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*the editor's
notebook*

to bring them up to date on Dunwoody, on their friends from Dunwoody days, and to gain their support through the fund, to help carry on the work of the school," he said. "Alumni and friends of Dunwoody who send their names and addresses to the school will be put on our mailing lists, and will receive the publications of the Association and Fund."

About 10,000 alumni were added to the mailing lists alumni during the past year.

What They Said

CARL J. SHARP, president of Acme Steel Company, in a report to stockholders and employees:

I think one of the most significant things I can say about our present management group is that they are all dissatisfied. Nothing better to their credit could be said. There is no complacency. They are not happy with the results of last year and their determination to do something about it is evidenced in the improvement in our profit showing the first quarter of this year.

BENJAMIN F. FAIRLESS, president of the United States Steel Company, at the Boston Jubilee of 1950:

If our businessman obeys the Sherman law he is probably violating the Robinson-Patman act, and if he obeys the Robinson-Patman act he is almost sure to be violating the Sherman Anti-Trust law.

The only way a businessman can be sure of obeying them all is just to go broke.

The unhappy fact is that once a man goes into business, anything he does is wrong.

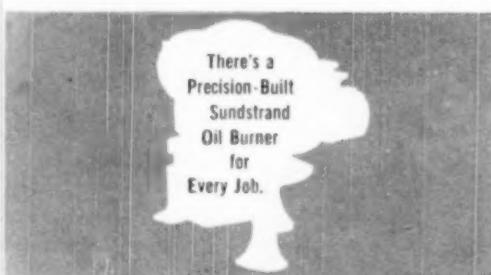
DR. HARLEY L. LUTZ, professor of public finance, Princeton University, told the Senate



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*A cautious
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SUNDSTRAND ENGINEERING CO.
Rockford, Illinois U.S.A.

*the editor's
notebook*

Committee on Appropriations:

If Congress approves appropriations and spending greatly in excess of estimated available revenues in this period of high level prosperity, production, and income, it will raise the question whether the government is capable of discharging the first and most important duty: keeping its financial house in order.

Shop First Aid Pays

In the smaller shop, as well as in the large plant, provision for prompt first-aid treatment of minor, on-the-job injuries pays.

Where machines are operated, tools are handled, and heavy objects are moved about there is always the chance of a wound or other injury. No more may be required than thorough cleansing, and application of an antiseptic and an adhesive bandage, but if even the most minor injury in which the skin is broken is neglected there is always the danger of infection. One of the lesser consequences of infection may be loss of several days working time, other consequences may be much more serious.

The small shop cannot afford to maintain a full-time physician or trained nurse, but it can afford to provide a first-aid kit and compact first-aid guide for the use of employees.

So far as open wounds are concerned, the chief purpose of first aid is to prevent additional germs from getting into the wound and to keep the wound clean and protected. Rubbing alcohol is the best thing to use for removing most kinds of dirt on the skin about the wound. Turpentine can be used to remove grease and oil.



"A lot of them that come in to buy a Field Draft Control walk out having bought an entire heating plant", the dealer told me.

A FOOT IN YOUR DOOR.... IS A FOOT IN THEIR DOOR

There were lots of folks milling around the dealer's store. That's unusual, so I asked, "Mike, you've got traffic here tonight like in a dime store. What's your angle?"

Mike pointed around the shop to various smart merchandise displays. "Here's my formula", he said. "A variety of merchandise, good merchandise display, good window displays."

"That's Fifth Avenue talk, Mike", I said with a smile. "Is it practical for the average dealer?"

"We figure like this", Mike explained, "a foot in our door is a foot

in some prospect's door. Take that Field Control display in the window. That brings quite a few inside."

"And do they buy Field Controls?", I asked.

"They sure do!", replied Mike. "And a lot of them that come in to buy a Field Control walk out having bought an entire heating plant. The point is that store traffic is worth money to a heating store, and to get store traffic you've got to carry a good line of related heating accessories."

From the looks of Mike's shop, his formula was mighty successful.



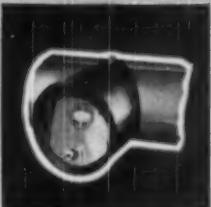
... that Field Control display in the window. That brings quite a few folks inside."



Installing a Field Draft Control, manufactured by Field Control Division, Mendota, Ill.

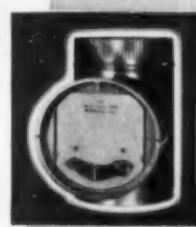
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Cranes - Hoists

the editor's notebook

Letters from Readers

Q Please explain how it is possible to attach three $9\frac{1}{8}$ in. diameter pipes in a vertical position to a $20\frac{1}{8}$ in. diameter base as shown in the April pattern development, by William Neubecker. I am at a loss to figure it out. In the top view of the drawing, you show three $9\frac{1}{8}$ in. diameters along the center line, within a $20\frac{1}{8}$ in. diameter.

RONALD A. NOVOTNY
Montgomery, Minn.

I have been interested in all pattern developments by William Neubecker and others as they have been published in **AMERICAN ARTISAN**. The development in the current (April) issue seems to contain an error.

Three branches $9\frac{1}{8}$ in. in diameter in line across the base would measure $27\frac{1}{8}$ in. plus clearances between the individual pipes . . .

I am pleased to note you have several pattern developments by William Neubecker for future publication.

I find the articles in **American Artisan** very instructive and helpful.

JAMES L. HOWE
Merrimac, Mass.

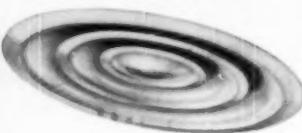
I have followed articles in your good publication for many years and have profited much from them. I have enjoyed studying the many sheet metal layouts that you have published from time to time.

Ordinarily I agree most heartily with your articles and layouts, but the pattern development in your April issue by the late William Neubecker, I

venturi-flo CEILING OUTLETS



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LOW NOISE LEVEL
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ENGINEERED FOR COMFORT CONDITIONING
FLUSH MOUNTING
SUPPLY AND EXHAUST
COMPLETE RANGE OF SIZES

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BARBER-COLMAN COMPANY

1226 ROCK STREET, ROCKFORD, ILLINOIS

the editor's notebook

must take exception to.

The projection as illustrated would be right, if . . .

One thing more, as long as I have my neck out, I don't understand how three $9\frac{1}{8}$ in. diameter parallel branches . . .

I hope I have made myself clear, but to help to prove my point, I am enclosing a tracing of the original drawing that can be superimposed with the revisions as I see them.

DAN. L. FRANCK
Franck Bros.
Audubon, Iowa

Readers Novotny, Howe, Franck, and others who called our attention to these errors are correct. We can only console ourselves with the fact that our pattern developments are popular.—ED.

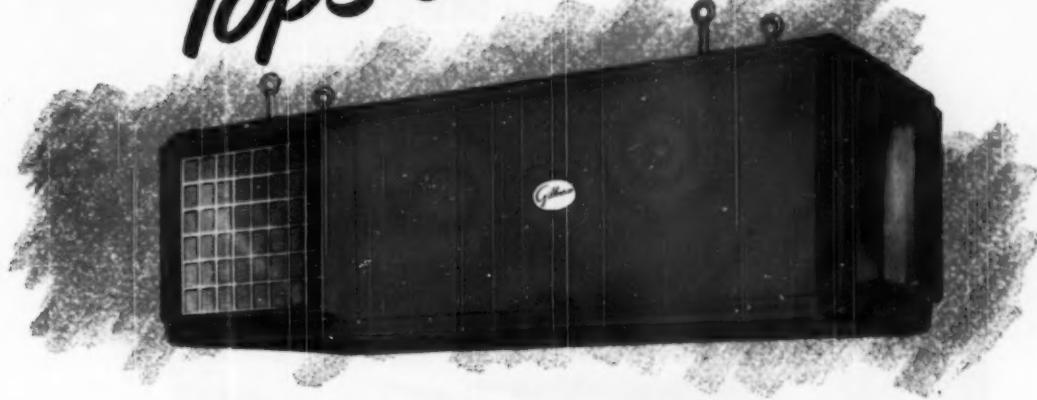
Q Kindly advise if you have any figures on percentage of profit and overhead to be added to material and labor. For example, after you know the cost of a furnace, how much is added for overhead and profit. Also, how is the cost of heat runs figured.

M. M. FRANKLIN
Franklin Furnace Co.
Omaha, Nebr.

Letters from readers discussing their cost of doing business experience would be welcomed. Most contractors would benefit by open discussion on this subject, but many feel it is personal and necessitates revealing pertinent facts. All of this can be avoided by discussing percentages.—ED.

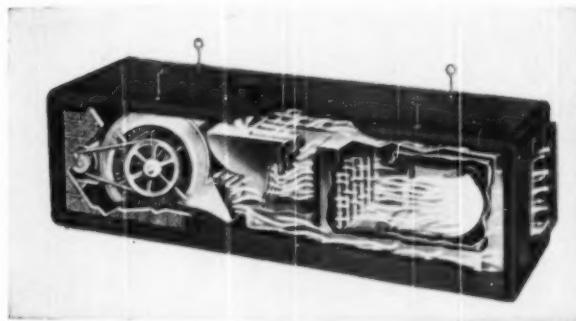
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Chicago 2, Illinois

Tops 'em all!



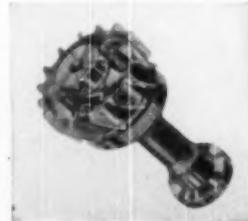
THE GILBARCO SUSPENDED FURNACE

saves space, fuel and operating costs for added sales appeal!



COUNTERFLOW HEAT TRANSFER — a fuel-saving feature of the Gilbarco suspended unit. Hot combustion gases move in opposite direction to flow of heated air, giving maximum transfer of heat through all parts of furnace. The unit hangs from ceiling with four steel eye-bolt hangers. Completely out of the way for 100% use of valuable floor space. Comes in 100,000, 150,000 and 200,000 BTU per hour sizes.

FAMOUS ECONOMY CLUTCH — All Gilbarco Suspended Unit Oil Burners are equipped with this exclusive fuel-saving feature that reduces heat-wasting soot, increases efficiency.



Customers want the Gilbarco Oil-Fired Suspended Furnace because of the tremendous savings it affords in space, fuel and operating costs.

Dealers acclaim the quick-and-easy low-cost installation of this outstanding suspended unit. You merely install oil piping and carry wiring to the power outlet and thermostat. The furnace is completely assembled at the factory, with burner already mounted.

Ideal for service stations, garages, stores, homes! It's the new, economical answer to those tough heating and space problems.

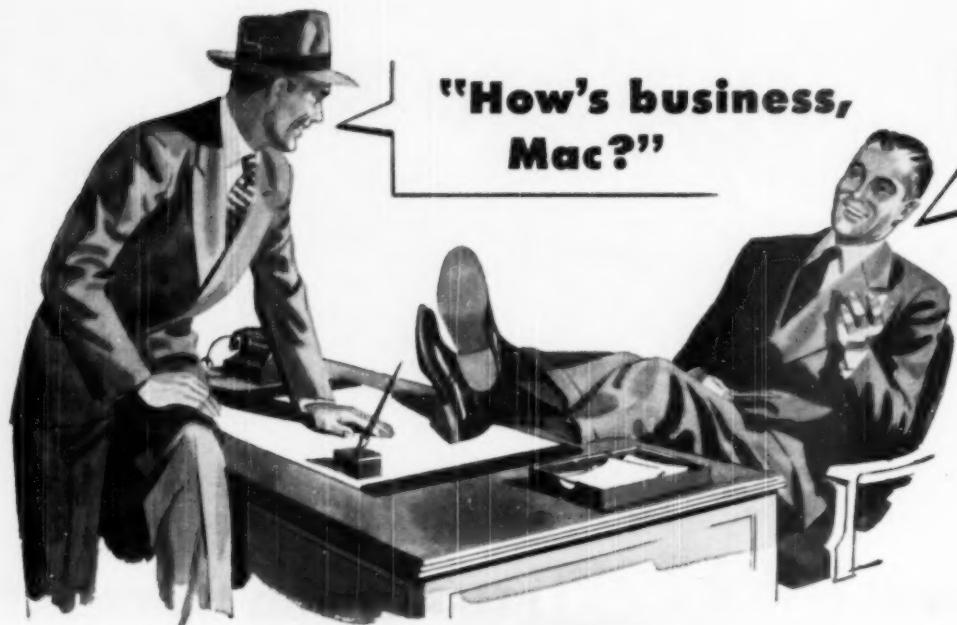
A few valuable franchises are now available west of the Appalachians. Write us today and get all the facts on this profitable, fast-selling line.

Gilbarco

**THE OIL BURNER WITH
THE ECONOMY CLUTCH**

Gilbert & Barker Manufacturing Company
West Springfield, Mass.—Toronto, Canada

**CONVERSION AND REPLACEMENT BURNERS
BOILER BURNER UNITS
WARM AIR CONDITIONERS • INDUSTRIAL BURNERS**



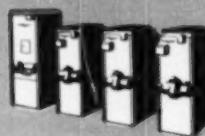
A COMPLETE LINE
with each unit specially engineered
for **GAS, OIL or COAL**



6 Sizes Gas Lowboy
80-220 M/B.T.U.'s



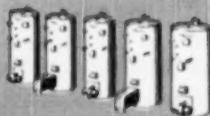
5 Sizes Oil Lowboy
80-180 M/B.T.U.'s



4 Sizes Oil Hi-Boy
70-120 M/B.T.U.'s



5 Sizes Oil Gravity
50-120 M/B.T.U.'s



Oil or Gas Round Boilers
5 Sizes to 1440 sq. ft.



Gas or Oil Water Heaters
12 Mods. 20-66 Gals.



Conversion Gas Burners
2 Mods. 50-300 M/B.T.U.'s

**"Wonderful! I've got a money-maker
in NORGE HEAT"**

Easier to sell! You will find that many customers *insist* on Norge Heat units. They already own one or more of the 185 Borg-Warner products. It is only natural that they associate high quality and dependability with Norge Heat.

For complete details



Priced to sell! There's a Norge Heat unit for every home heating need. Priced right, every Norge Heat unit is a *money-maker*.

write today to . . .

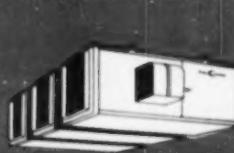
**Norge Heat, 672 E. Woodbridge
Detroit 26, Michigan**



8 Sizes Gas Radiant
62.5-120 M.B.T.U.'s



4 Sizes Gas Gravity
75-150 M.B.T.U.'s



2 Sizes Gas Stowaway
100-225 M.B.T.U.'s



3 Sizes Gas Gravity
90-160 M.B.T.U.'s



15 Sizes Coal Gravity
& W.A.C.'s 20-27 in.



Oil or Gas Square Buffers
5 Sizes up to 1440 sq. ft.



Conversion Oil Burners
2 Models 75-6 G.P.H.

NORGE HEAT

Division of Borg-Warner Corporation

Living's a treat with Norge Heat



IT'S A
Rybolt

for GAS HEATING

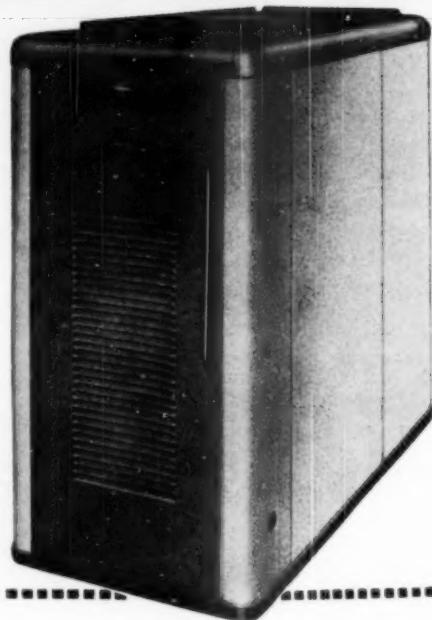
Dependable • Convenient • Economical

MEET THE DEMAND WITH THE COMPLETE RYBOLT LINE

With various types and many sizes to meet every heating requirement and a wide range of prices to fit every budget the complete Rybolt line gives the dealer an unusual opportunity to get his share of the heavy volume in gas heating business.

RYBOLT CAST IRON GAS-FIRED WINTER AIR CONDITIONER

Here's a top quality cast iron gas-fired unit designed and built to give the best in gas heating. It is a sectional cast iron unit providing exceptional heating qualities and insuring durability for many years of trouble-free heating service. Completely automatic and equipped with the most approved modern heating features.



Rybolt Steel Gas-Fired Winter Air Conditioner



This unit with its heavy gauge steel heating elements is not only unusually compact, dependable and convenient, but also exceptionally economical to operate. Smaller sizes come completely assembled as package units. Larger sizes are extremely easy to assemble on the job, because of their simple slip joint construction. Completely automatic and fully equipped.

"It's a Rybolt" for all Fuels and all Heating Needs

Rybolt heating units come in all sizes . . . in steel or cast iron . . . fired by coal, gas or oil . . . to furnish heating service for houses large and small, new and old. From simple gravity furnaces to the most advanced automatic forced air unit they are engineered and built for utmost dependability, convenience and economy. At the same time they are decidedly attractive in design and finish and reflect quality in every detail.

Write for detailed information



THE RYBOLT HEATER COMPANY
615 MILLER STREET

ASHLAND, OHIO

Specify Anaconda Through-Wall Flashing



the flashing that drains itself dry

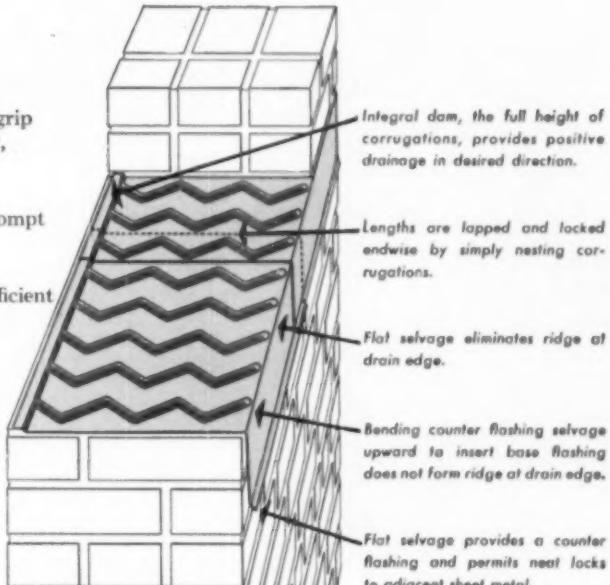
better because...

- 1 ANACONDA herringbone corrugations grip mortar firmly, strongly—permanently, above and below.
- 2 ANACONDA design assures proper—prompt—complete drainage.
- 3 ANACONDA flat selvage makes neat, efficient installation easier—faster.
- 4 Integral one-piece corner flashings are available.



Standard outside corner flashing unit.
Dam on outside, drain in.

For complete information on ANACONDA Through-Wall Flashing, let us send you booklet C-28. Just address The American Brass Company, Waterbury 20, Connecticut. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario.



For sure protection **ANACONDA**
THROUGH-WALL FLASHING

Look

it's NEW

it's **TM**^{*}

it's

thermostat

Now available on all HONEYWELL *Comfort* Thermostats

The advantages of TM—Thermostat Magic—are now available on all Honeywell Comfort Thermostats—at no increase in price! This new TM principle provides better heating, more even inside temperatures, regardless of outside weather conditions. Rapid changes outside won't affect these new TM thermostats, because they work with the weather. Your customers all will want the magic of TM. Order your supply NOW.

Crowning 65 years of development



TM Tested and Approved

300,000 TM thermostats now in use—many for three heating seasons—have demonstrated the comfort advantages of the Honeywell TM principle. Home owners are enjoying a new standard of heating comfort—made possible by Honeywell scientific research.

TM Meters the Heat

Controlled frequency of burner operation provides an even flow of heat under all conditions. Thermostat Magic means more than thermostat accuracy—it means maximum heating comfort and efficiency—at no increase in heating cost.

TM Thermostat Magic means:

No More Waiting for Heat

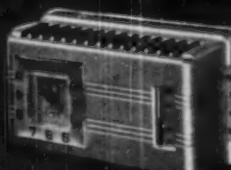
No More Chilly Floors

No More Overheating

No More Fuel Used—*instead*

More Comfort For Your Heating Dollar

agic!



Comfort

Comfort

MINNEAPOLIS
Honeywell
FIRST IN CONTROLS

TM keeps the heat coming in regulated portions



TM furnishes the required heat by properly regulating the length of burner operation in accordance with outdoor weather conditions—longer in cold and shorter in mild weather. Comfort always!

Long and irregular burner operations permit up and down temperatures that are too hot or too cold for comfort. The varying temperatures cause sensations of drafts and chills. Discomfort!

TM Principle
provides
Better Heating—
Always



Comfort

TM furnishes the required heat by properly regulating the length of burner operation in accordance with outdoor weather conditions—longer in cold and shorter in mild weather. Comfort always!





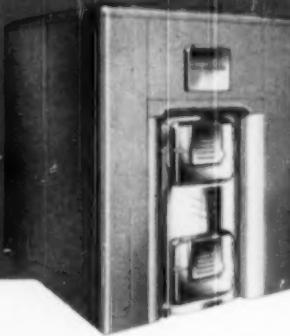
FLY HIGH IN '50

YOUR PROFITS WILL SOAR WITH



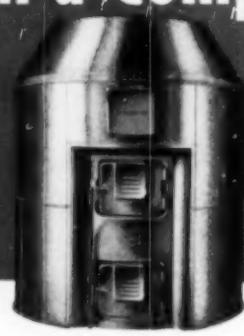
QUALITY LEADERS SINCE 1901

Sell a Complete Line!



**Supersteel 3-Fuel
Winter Air Conditioner**

Burns coal—can be converted to burn oil or gas with top efficiency. Five big models. BTU rating at bonnet from 102,000 to 188,000. Up to 21% greater heating area than other makes. Automatic controls, humidifier, filters and blower. 10-year replacement warranty.



Supersteel 3-Fuel Gravity

Economy leader, can be converted to burn oil or gas. Has famous "Steel-Ring" radiator and Giant Steel Drum combustion chamber. Up to 10% greater efficiency than ordinary furnaces. 5 models—85,000 to 157,000 BTU at bonnet. 10-year guarantee.



Automatic Gas Gravity

Approved by A.G.A. and with a 10-year Kalamazoo guarantee. Firebox and radiator of copper bearing steel, are welded and leakproof. Ring type Radiator and longer flue. 2 models—56,000 and 67,500 BTU at bonnet. Automatic controls and humidifier included.

Sell a Modern Line!

FEATURING THE AMAZING

NEW *Convertible* WINTER AIR CONDITIONER

ENGINEERED TO BURN

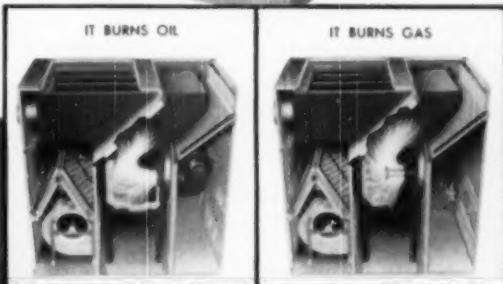
Gas or Oil

WITH MAXIMUM EFFICIENCY

An outstanding example of Kalamazoo engineering achievement! This new Kalamazoo Supersteel Winter Air Conditioner builds up profits—while it lowers inventories. It's designed to burn oil or gas with maximum efficiency—so you stock only one line—not two lines!

This revolutionary Supersteel has been successfully engineered for the quick installation of an oil burner or a gas burner—as needed. Once installed, it can be converted quickly to burn the other fuel.

Most important is this Supersteel's amazing fuel efficiency—whether it burns oil or gas. BTU input ratings for gas 75,000 to 140,000—for oil, 81,500 to 135,500 BTU at bonnet.



SELL KALAMAZOO!

MAIL THIS COUPON FOR INFORMATION

The Kalamazoo Stove & Furnace Company
453 Rochester Ave., Kalamazoo, Mich.

Please send information about the Kalamazoo Line.

Name

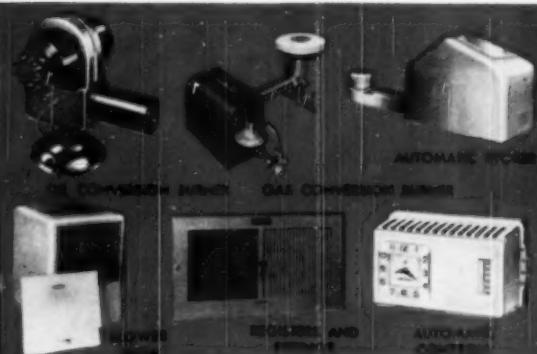
Firm

Address

City and Zone

State

Dealer Distributor



Oil Conversion Burner.
Quickly installed in any make furnace. Capacities up to 10 gal. per hr. Automatic controls.

Gas Conversion Burner.
Up to 100,000 BTU input. Can be supplied for all gases, for all furnace makes. With automatic burner controls. A.G.A. approved.

Automatic Coal Stoker.
For any make furnace. 7

models—20 to 150 lbs. burning capacities. Automatic controls. Blower-Filter. Installed on side or back of furnace.

Registers and Fittings.
A complete line of registers and fittings for winter air conditioning or gravity systems.

Automatic Controls. Include M-H Chronotherm (pictured), thermostats, transformers, damper motors.



Metropac The Prestige

The MOST ADVANCED WINTER AIR CONDITIONER EVER DEVELOPED
Supplies Efficient Controlled Domestic Hot Water the Year Round

One Unit Brings:

WINTER — Filtered humidified warm air — genuine indoor comfort

SUMMER — Cooling filtered circulating air

YEAR ROUND — Controlled domestic hot water at minimum cost

U. S. Patent 2212222

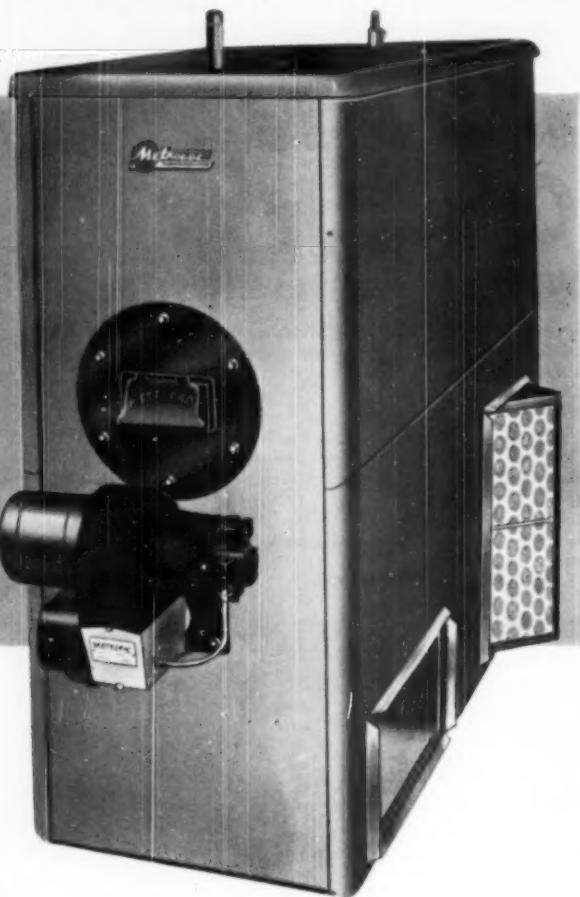
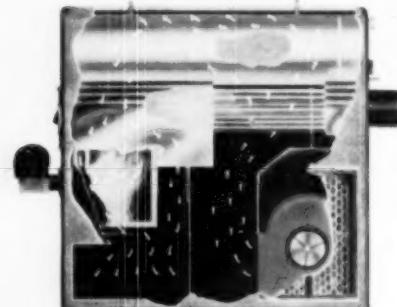
Other patents applied for

3 sizes: 70,000 B.T.U.

120,000 B.T.U.

180,000 B.T.U.

REGISTER RATINGS



Let **Metropac** Shatter YOUR Sales Records, TOO!
IMMEDIATE DELIVERY

DESIRABLE FRANCHISES AVAILABLE TO PREFERRED DEALERS

SEE
Metropac
ON DISPLAY

NEW ENGLAND OIL HEAT EXPOSITION
JUNE 19-22
BOOTHS 61, 62, 63, HOTEL STATLER, BOSTON

Line You Can Sell With Pride!

THIS **NEW** STRAIGHT AIR UNIT

Rounds out the *Metropac* Line

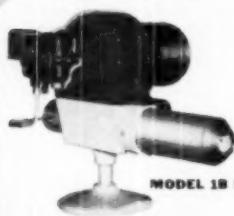
Same Metropac Operating Economy. Famous Exclusive Replacement-Proof Burner

Designed for homes and small buildings where the exclusive *Metropac* domestic hot water feature is not required.

Patent Pending
3 sizes: 95,000 B.T.U.
135,000 B.T.U.
195,000 B.T.U.
BONNET RATINGS



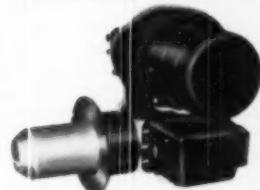
Metropac OIL BURNERS mean . . . You Sell SCIENTIFIC HEATING ECONOMY
EXCLUSIVE REMOVABLE HEAD RESULTS IN SIMPLIFIED SERVICING AND REPLACEMENT



MODEL 1B Shell Head



MODEL 1B



FLANGE TYPE OIL BURNER

All models are available with shell designed combustion head and in any desired tube length with G.P.H. ratings from .75 to 10.

METROMATIC MANUFACTURING COMPANY, EVERETT 94, MASSACHUSETTS

Comfort 4-WAY Air Washer

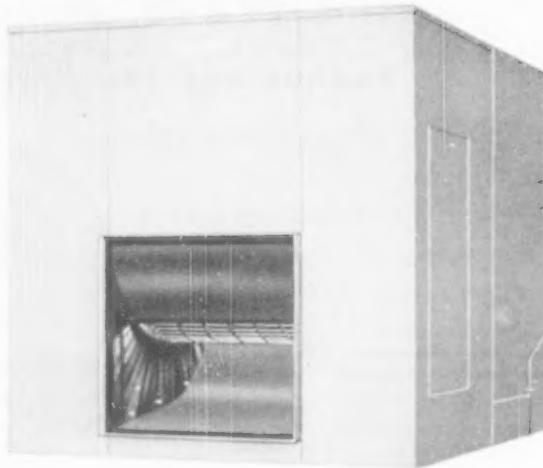
*a Better Product
doing a
Better Cooling
Job*



Diagrammatically
here's the way the
Comfort
Air
Washer
works—

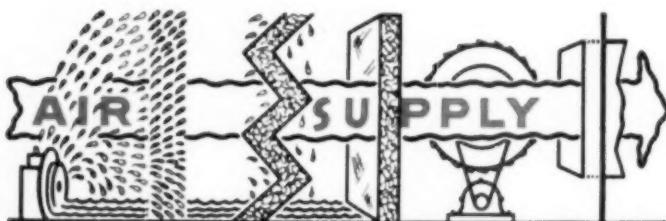
For further
information
write to . . .

**COMFORT
PRODUCTS
CORP.**
2220 LAMESA • DALLAS, TEXAS



The revolutionary Spray-Wheel Air-Washer was designed by Comfort to answer a real need in the evaporative cooler field. Comfort filled this industry-wide gap with these exclusive Air-Washer features: ★ No clogging filters ★ More pad area ★ Full-rated capacity ★ Odors eliminated ★ Trouble-free service ★ Longer life ★ Less CFM cost.

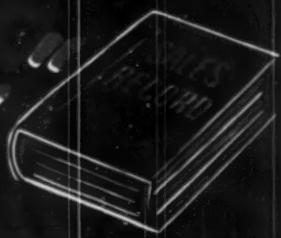
THE Comfort Air Washer . . . THE COOLING UNIT THAT DEFIES MAINTENANCE



- INCOMING AIR
permitted
of dust and
dust. Filter
pads remain
unplugged,
existing
efficiency
stays high
and uniform.
- COMFORT'S
SPRAY WHEEL
permits
continuous
shower of
water on
heavy water
resist
and
water
PUMPS—
NO SPRAY
NO FILTER
trouble-free
service.
- ONE THIRD
MORE PAD
AREA (from
stepped)
permits
lower
humidity,
lower
resistance,
lower
efficiency.
- FIBERGLASS
pads
throughout
—will
resist
vegetable
and fungi.
- SPECIAL
BAFFLE
FILTER
wings
extract
moisture
from the air
without
humidity
REDUCED
to absolute
minimum.
- *Beg.
- OVERSIZE
BLOWER
and motor
guarantees
full and
TRUE rated
air supply
for long life
and heavy
duty. NOISE
AND VIBRATION
reduced to
negligible
levels.
- NO NOISY
drafts . . .
before
required,
planned.
dust
system
distributes
uniformly
in a gentle
breeze . . .
minimizes
back
pressures.

MEET A NEW

"Best Seller"



FAIRBANKS-MORSE GAS CONVERSION BURNER

Here is a new gas conversion burner we sincerely believe will make more sales, more friends for you than any other gas conversion burner! Why?

First, the Fairbanks-Morse conversion burner is not a "quickie," pulled out of an engineering hat to meet the opportunities in a rising market. From drafting board to finished product, care, precision and know-how have been the pacemakers—which have demanded the best from the skilled craftsmen who make it. Second, exhaustive tests in the finest laboratory on earth—the American home—have proved its dependability and efficiency!

Here is no temperamental tyrant which demands frequent attention of servicemen . . . no be-gadeted mystery that is hard to install and harder to service! But, here is a well made burner that burns any gas safely, efficiently and economically—to your customers' satisfaction, to your profit!

Get sales rights now Send today for complete information about this new conversion gas burner—and for all details about Fairbanks-Morse sales rights in your territory. Write Fairbanks, Morse & Co., Chicago 5, Illinois.

FAIRBANKS-MORSE,

a name worth remembering

DIESEL LOCOMOTIVES AND ENGINES • ELECTRICAL MACHINERY • PUMPS • SCALES
HOME WATER SERVICE AND HEATING EQUIPMENT • RAIL CARS • FARM MACHINERY

These features help you sell

- Burns every type of gas, including butane, propane.
- Fits most all types of furnaces, boilers or winter air conditioners.
- Compactly designed; neatly packaged.
- Unusually easy to install.
- Requires minimum service.
- Offers maximum safety in operation; foolproof.
- Stainless steel flame spreader, designed to obtain maximum heat transfer.
- Heavy steel main burner, flame stabilizer assure stable, non-floating flame.
- Available in two sizes—with adjustable input feature—to meet every home heating need.

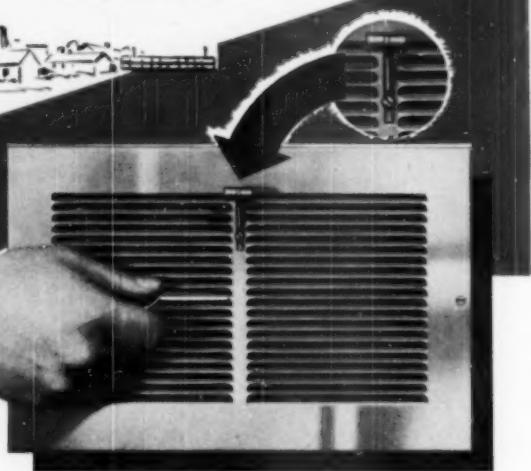
The Ideal register

for HOUSING PROJECTS

IN NO OTHER LOW-COST AIR CONDITIONING REGISTER WILL YOU FIND A COMBINATION OF SO MANY FINE FEATURES:

- 1 Quality of construction, workmanship and appearance unsurpassed in registers at any price.
- 2 Up, straight or downward deflection easily obtained by adjustment of horizontal fins with special tool furnished.
- 3 Smoothly operating friction hinge valve — Providing **POSITIVE VALVE CONTROL**.
- 4 Simple adjustable handle-stop permits system balancing at the register face if desired. NO SPRINGS OR SMALL PARTS TO BREAK OR BECOME LOST!
- 5 Sponge rubber gasket provides perfect seal between register and wall.
- 6 Infra Red baked-on **PRIME COAT** finish of an attractive neutral shade that blends well with any decorating scheme. Also affords perfect base for decorating. **METALUSTRE** — a superb soft-toned metallic finish is available at no extra cost.
- 7 Duct flange prevents interference with stackhead and simplifies installation.

See the H&C No. 74 design registers and grilles at your H&C Jobber. You'll agree there's nothing to equal it for low-cost housing installations.



H&C No. 74 A.C. Register with volume control



H A R T & C O O L E Y

MANUFACTURING CO., 500 EIGHTH STREET

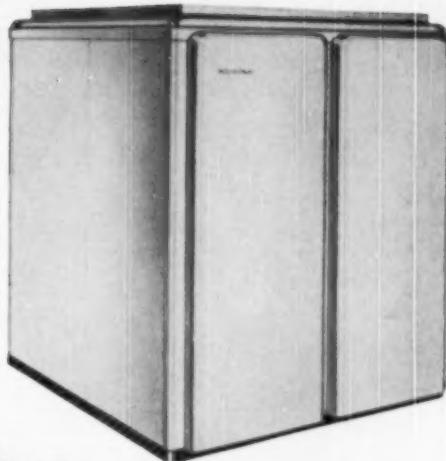
HOLLAND, MICH.

IN CANADA: HART & COOLEY MFG. CO., FT. ERIE, N. ONTARIO

WORLD'S LARGEST PRODUCERS OF REGISTERS, GRILLES, AND FURNACE ACCESSORIES

for **TOP** performance
...and **LOW** cost...and
for **MOST** heating
requirements..

Luxaire



BUILDS **CAST IRON** GAS-FIRED UNITS
FROM 50,000 B.T.U. TO 200,000 B.T.U. INPUT

... for Forced Air Installations . . . for Gravity Installations . . .

For Cast Iron, Gas Fired Units that are really "Way Ahead" in top performance . . . low-cost . . . and, for practically ANY heating installation—Luxaire builds a most complete line in sizes that range from 50,000 B.T.U. to 200,000 B.T.U. input per hour.

Luxaire Cast Iron equipment excels in such superior construction and operating features as—Round Combustion chambers for uniform expansion and contraction . . . NO vertical, cemented joints . . . and one-piece radiators with convenient

clean-out ports—all features, distinctive with Luxaire.

For builders, architects and homeowners who prefer gas fired heating equipment of cast iron construction, that is vastly superior in design and surprisingly low in cost, there is a high quality Luxaire Unit that will adequately meet his most exacting demands and specifications.

See your Luxaire jobber or write us for illustrated catalogs on Luxaire's complete line of heating equipment.



Series A
Gas-Fired
Steel Air Conditioning Unit.



Series B
Gas-Fired
Steel Utility Air Conditioning Unit.



Series G
Gas-Fired
Gravity Furnace
Available with
Steel or Cast Iron
Heating Element.



Series O
Gas, Oil-Fired
Air Conditioning
Unit, Steel
heating Element.



No. VHC-75-E
Oil Counter-
flow Unit, for
Slab Floor,
Perimeter
Heating.



No. HC-95-E
Gas Counter-
flow Unit, for
Slab Floor,
Perimeter
Heating.



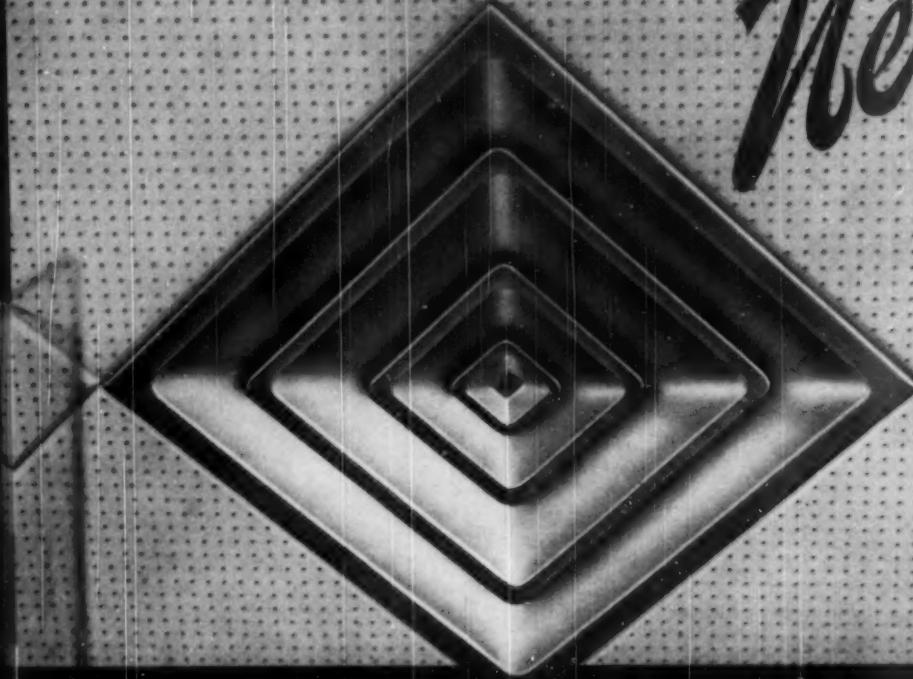
Series C
Coal-Fired,
Cast Iron
Furnace.



Series AC-F
Coal-Fired Air
Conditioning Unit.

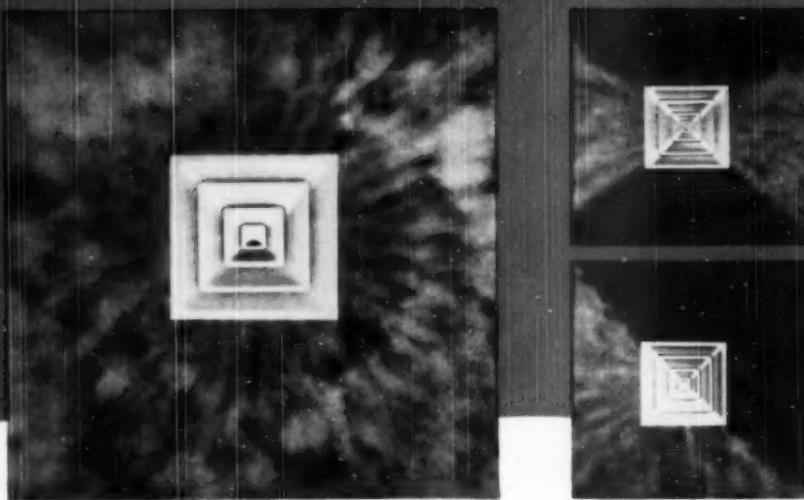
THE C. A. OLSEN MANUFACTURING COMPANY • ELYRIA, OHIO
Luxaire HEATING & AIR CONDITIONING UNITS

New



360° AIR DISTRIBUTION or any required pattern

Photographs of actual
models show planning with
one air pattern obtainable
with the Type D Diffuser



Aerofuse

TYPE D SQUARE DIFFUSER

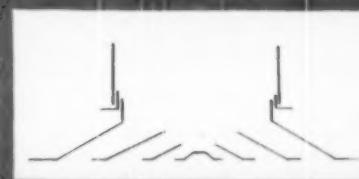
An important addition to the extensive Aerofuse line, the new Type D, is an efficient, smartly styled diffuser developed to answer the increasing demands from engineers and architects for a square outlet that will deliver supply air in a 360° pattern . . . and, in appearance, harmonize with modern building interiors.

Engineered to the highest standards of operating performance, the Type D Aerofuse provides complete flexibility of air pattern. To meet specific job requirements where circular distribution is not practical, baffles may be used to blank-off portions of the diffuser and direct air stream in a variety of patterns. Thus the Type D can be installed near walls, supporting columns and other obstructions without creating drafty conditions.

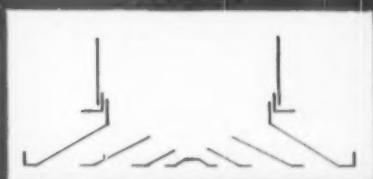
at the vital point of air delivery

Two types are available . . . Type D², for flush mounting in standard acoustical tile ceilings . . . Type DE, for installation on plaster ceilings. Both types are listed in four sizes (12" x 12", 16" x 16", 20" x 20", 24" x 24", 20" x 30") with neck diameters from 6" to 13".

TYPE D²



TYPE DE



For complete details, see Aerofuse Type D² and Type DE Catalog.



TUTTLE & BAILEY INC



NEW BRITAIN, CONNECTICUT

"I built a successful new business fabricating Stainless Steel"



G. R. GRIFFITH

G. R. GRIFFITH, whose idea grew into a successful business of fabricating Stainless Steel.

AT the end of the war, G. R. Griffith of Chicago, Ill., had an idea. Why not fabricate door hardware from Stainless Steel? Architects and builders responded favorably and Mr. Griffith began work in a small shop with rented tools. But let him tell the rest of the story:

"At first my purchases of Stainless Steel were quite small and insignificant, but I noticed that United States Steel representatives were right on the job. They handled

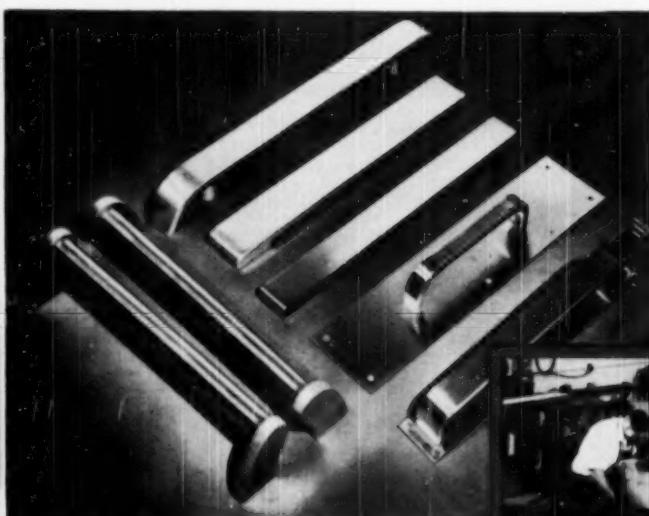
my small orders like they were carload lots, all the while giving me encouragement in trying to build a new kind of business.

"Today, I have a shopful of top-quality machinery and tools—and an enlarged shop, as well. In addition to Stainless hardware, we now fabricate sign letters, door frames, window bulkhead panels, canopy and marquee covering, splash panels and many other items, all of Stainless Steel.

"Much of our fabricating involves Stainless Steel sheets and strip, but we also work bar stock up to $\frac{1}{2}$ " thick, $1\frac{1}{2}$ " rounds; 2, 3 and 4" tubing; angles; channels, and the like.

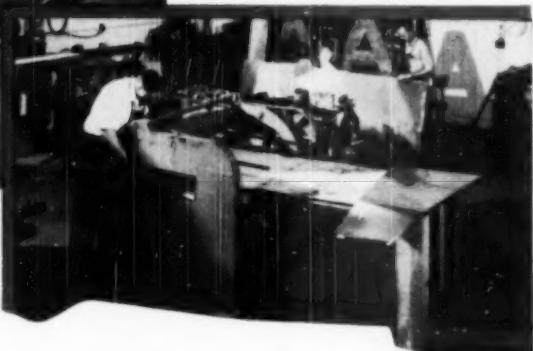
"From my experience, potential fabricators of Stainless Steel need not feel they have to have a million dollars worth of equipment and tools to enter the field. But, when you invest in equipment, buy good equipment and keep it in condition. And, I'd say consult the Stainless Department of United States Steel Supply Company. They can help you and they will."

We invite you to follow Mr. Griffith's advice and bring your fabricating problems to us. Our Stainless engineers will gladly assist you in using perfected, service-tested U·S·S Stainless Steel in all forms and to the best advantage.



U·S·S STAINLESS STEEL is used in the fabrication of these attractive door pulls, push bars, pull plates and store door handles.

ON THE BASIS OF EXPERIENCE in his shop, Mr. Griffith advises Stainless fabricators, "Keep tools in good condition and your shop clean."



AMERICAN STEEL & WIRE COMPANY, CLEVELAND • CARNegie-ILLINOIS STEEL CORPORATION, PITTSBURGH

COLUMBIA STEEL COMPANY, SAN FRANCISCO • NATIONAL TUBE COMPANY, PITTSBURGH • TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM

UNITED STATES STEEL SUPPLY COMPANY, WAREHOUSE DISTRIBUTORS, COAST-TO-COAST • UNITED STATES STEEL EXPORT COMPANY, NEW YORK



8-797

U·S·S STAINLESS STEEL

Sheets • Strip • Plates • Bars • Billets • Pipe • Tubes • Wire • Special Sections

UNITED STATES STEEL

NOW...CASH IN

ON A NEW MARKET WITH THIS GREAT NEW PLAN

HERE'S HOW IT WORKS



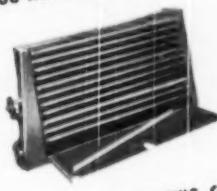
START WITH A
SERVEL COOLING UNIT,
quiet, no moving parts, steam-
operated.

For air movement ...



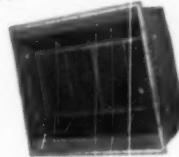
SELECT A
SERVEL FAN,
insulated for sound absorption, no sweat-
ing outside, automatic volume control for
seasonal variations in air quantity.

If you need heating ...



SELECT A SERVEL HEATING COIL,
non-ferrous construction—faster heat
transfer.

When it comes to cleaning ...



SELECT SERVEL FILTERS,
extra-large surface for longer life—higher
cleaning efficiency, tight fitting for greater
effectiveness in filtering pollens.

If you need humidification ...



SELECT A SERVEL HUMIDIFIER,
copper—to resist corrosion, removable
for cleaning.

If you need a source of steam...



SELECT
A SERVEL
STEAM
GENERATOR,
BURNERS,
CONTROLS

Cast iron, long life—small water capacity
for fast action—automatic water-level
control—high heat-transfer for efficiency.

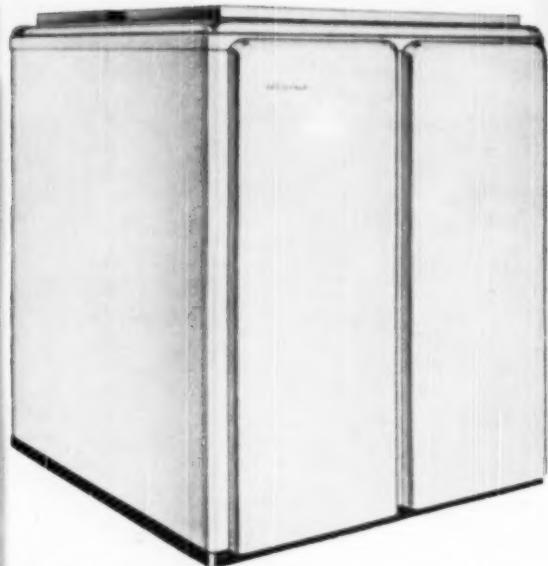
WRITE FOR full information about the Servel "Custom Assembly" Plan and the name of your local Servel distributor: Servel, Inc., Air Conditioning Division, Evansville 20, Indiana.

Here's what this new PLAN means to YOU

- you can offer the world's finest equipment for any work you bid on
- you can get jobs you might otherwise have to pass up
- you buy only what you need to get the best solution for each conditioning problem—even save on enclosing-panels unless desired for appearance
- you need only a minimum of floor space
- you can keep job costs at rock-bottom
- you can make more profits

Servel
All-Year Air Conditioning

Turn to
MONCRIEF
 for *Cast Iron*
GAS-FIRED UNITS



Because
MONCRIEF
 builds them from
 50,000 B.T.U.
 to
 200,000 B.T.U. INPUT

Yes—You have a unit for practically any size heating installation with Moncrief's incomparable, cast iron, gas fired line.

Your Moncrief line is "Years Ahead" in ALL features—design . . . construction . . . and operation. From every angle you have ALL the selling points to meet today's demand.

Inside the smartly designed, baked enamel cabinets are the cast iron heating elements, comprising durably constructed, round combustion chambers . . . large one-piece radiators with readily accessible clean-outs. Heating sections are built without major vertical joints. There is a Moncrief for the small installation of 50,000 B.T.U. or the large installation of 200,000 B.T.U. and there is a size also for the in between requirements.

Just call your Moncrief jobber. He can supply any size or type of unit you require. Moncrief Units are available for Gravity, Forced Air and Perimeter heating installations.



Series E
Gas-Fired Steel
Air Conditioning
Unit



Series U
Gas-Fired,
Steel Utility
Air Conditioning
Unit



Series P
Gas, Oil-Fired
Air Conditioning
Unit. Steel
heating Element.



Series W
Gas-Fired
Gravity Furnace.
Available with Steel
or Cast Iron
heating Element.



Series AC-F
Coal-Fired, Steel
Air Conditioning
Unit.



Series C
Coal-Fired,
Cast Iron,
Gravity
Furnace.



No. UC-95-E
Gas, Counter-
flow Unit, for
Floor Slab,
Perimeter
heating.



No. VUC-75-E
Oil, Counter-
flow Unit, for
Floor Slab,
Perimeter
heating.

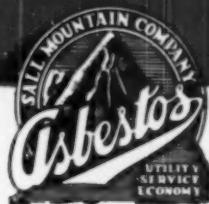
THE HENRY FURNACE COMPANY

Medina, Ohio

HEATING AND AIR CONDITIONING UNITS

MONCRIEF
MADE IN U.S.A.

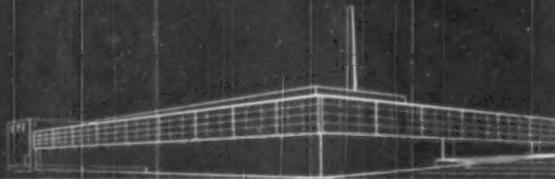
FURNACE PIPE AND FITTINGS



SINCE the year 1886, when Sall Mountain Company was founded, this company has taken a leading position in manufacturing Asbestos Products and in the fitting of asbestos to an ever widening field of industrial uses.

The latest in advance equipment is of course, important, but most important is the long years of Sal-Mo experience in solving problems involving the use of Asbestos.

SALL MOUNTAIN COMPANY
ANDover 3-2414 • 176 W. Adams St. • Chicago 3



At our mills we have the latest improved and highly specialized equipment and machinery for processing Asbestos and Asbestos Products.

AMERICAN-Standard

First in heating . . . first in plumbing

**If they prefer gas heating . . .
they'll like these AMERICAN-Standard units!**

■ It's smart to have what your prospective customers want. That's why it pays to carry a complete line of winter air conditioners and warm air furnaces. When they say they're interested in gas heating, show them something from the Sunbeam line by American-Standard. The

chances are that you'll make the easiest sale you've ever made . . . for no name enjoys greater public acceptance. Contact your Wholesale Distributor for full information. **American Radiator & Standard Sanitary Corporation, P. O. Box 1226, Pittsburgh 30, Pa.**

Look for this



Mark of Merit



NAVAHO Floor Furnace

Designed for small homes and small buildings, the compact Navaho (only 27½" deep, over-all) can be installed easily in the floor of any building with or without a basement and does not require excavation. Factory assembled, it is available in three sizes with a range in Btu input per hour of 25,000 to 50,000. Can be supplied with flat floor grille or dual wall register. Burns manufactured, natural, mixed, liquefied petroleum or butane-air gas safely, efficiently and economically.

AMERICAN-Standard Marine Products

Independently built on a separate base, the floor spuds, the Shaver, and the Marine Products units can be used as game rooms, laundry, or work shops. Built in five sizes—from 65,000 to 140,000 Btu input per hour—the Shaver is expertly engineered to give the utmost in heating comfort. Two smallest sizes are factory assembled. Copper bearing steel heating element provides the longest possible area of heating surface for hot combustion gases to travel.



Serving home and industry

AMERICAN-Standard • AMERICAN BLOWER • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILERS • BOSS HEATER • TONAWANDA IRON

Brandes PERIMETER BASE Heat

AVAILABLE NOW An entirely new, tested and proven concept in warm air heating. Brandes all metal base applies heat to the source of cold at the base of the outside walls, blanketing them with a layer of heat. This arrangement uses absolutely no room space, as it takes the place of regular wooden baseboard.

Here is a product that will bring you new customers, and high profits. Get the jump on competition with a product that sells itself with down to earth, common sense sales appeal that *customers* can see.

GET THE FACTS TODAY
NO MORE . . .

Cold Floors
Cold Drafts
Unsightly Radiators or Registers
Blasts of Hot and Cold Air
Problems of Furniture Placement
Streaking or Dirtying of Walls

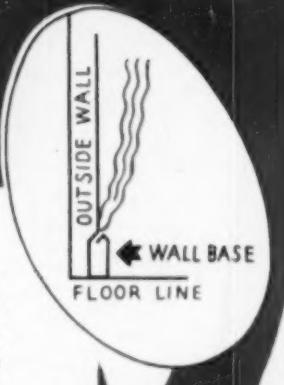


Distributors and Manufacturers Representatives Inquiries invited.



*Patent Pending

**PRODUCES
NEW
PROFITS**



The schematic drawing above shows heated air leaving wall base and being directed away from wall. Yet it remains adjacent to wall for thorough coverage.

**FOR FURTHER INFORMATION
ASK YOUR SUPPLIER
OR WRITE TO**
BRANDES COMPANY
2046 WINNEBAGO
MADISON 4, WISCONSIN

ACE HIGH with CUSTOMERS

A
♣

"Experienced men in the service field know and recognize Penn quality and dependability. Penn cooperation has always been excellent. It is our sincere desire to continue our business and personal relationship with Penn for many years to come."

—D. Ray Parker, President
Seattle Pump Service Co., Inc.
Seattle, Wash.

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"We have handled thousands of control applications in Kansas and the eastern half of Missouri. Consequently we feel qualified to say that Penn controls are the finest in quality and entirely dependable."

—Charles D. Jones
Chas. D. Jones & Co.,
Kansas City, Mo.

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Wholesalers everywhere . . . and dealers, too . . . have put their "stamp of approval" on PENN heating controls. They know from experience that PENN quality and dependability reduce service calls . . . win and hold customer satisfaction . . . and increase profits!

Try PENN on your next heating job and you'll be convinced they're "ace high" on systems of every type, with every kind of fuel. Remember . . . for over 15 years PENN heat-anticipating thermostats have proved their

ability to control temperature more closely . . . to compensate automatically for outside weather changes . . . to give truer heating comfort.

And PENN costs no more than ordinary heating controls! Try them . . . you'll be convinced it's profitable to standardize on PENN controls for every heating job. Ask your burner manufacturer, wholesaler or write **Penn Electric Switch Co., Goshen, Indiana**. Export Division: 13 East 40th Street, New York 16, U. S. A. In Canada: Penn Controls, Ltd., Toronto, Ontario.

PENN

AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, PUMPS, AIR COMPRESSORS, ENGINES, GAS RANGES



demand
DETROIT CERTIFIED CONTROLS

From Coast
to Coast-



Millions Have Now
Met Detroit's

"Thermostat
with a Brain"!

INTRODUCING GREAT NEW PROFIT POSSIBILITIES FOR YOU!

Now is the time for you to take advantage of this great sales opportunity! National advertising by **DETROIT** has made millions of home owners and home builders the country over, *Timed Cycling* conscious! By selling the full line of **DETROIT** controls with the remarkable *Timed Cycling Room Thermostat*, you can give your customers the assurance of fuel economy and perfect heat control by

the elimination of over and under heating! Moreover, **DETROIT** controls are the *only* ones certified for reliability, performance, and engineering excellence! So order your supply today—they will bring greater comfort to your customers and greater profits to you!

DETROIT
LUBRICATOR COMPANY

5900 TRUMBULL AVE., DETROIT 8, MICHIGAN

Division of **AMERICAN ARTISAN & Standard Sealers Corporation**

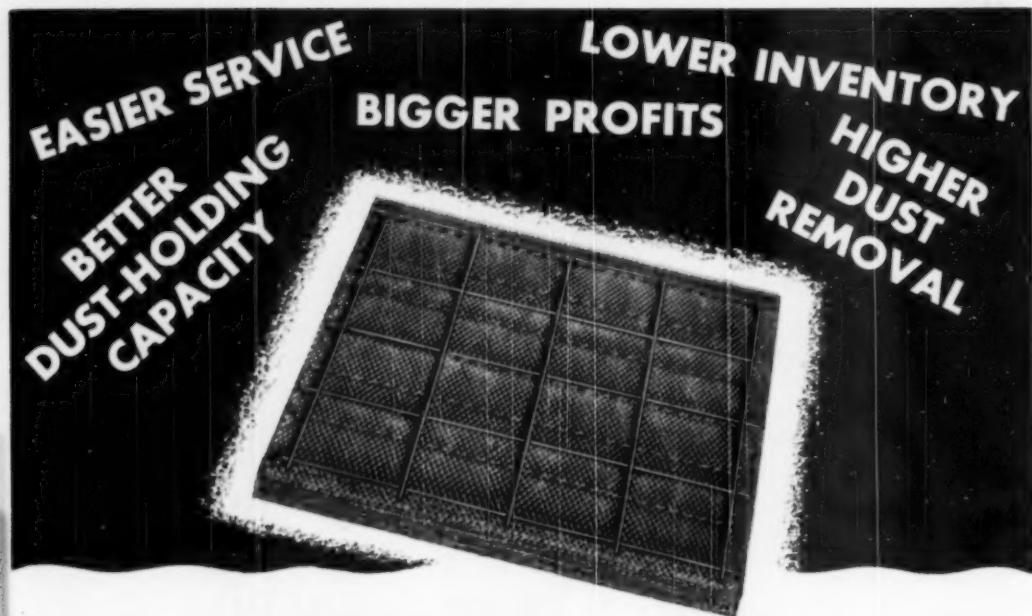
Canadian Representatives: **RAILWAY & ENGINEERING SPECIALTIES, LTD.**—Montreal, Toronto, Winnipeg



Look for this Certificate
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DETROIT Wholesalers
sell certified Controls.

DETROIT HEATING AND REFRIGERATION CONTROLS • **ENGINE SAFETY CONTROLS** • **FLOAT VALVES AND OIL BURNER EQUIPMENT** • **DETROIT EXPANSION VALVES AND REFRIGERATION ACCESSORIES** • **STATIONARY AND LOCOMOTIVE LUBRICATORS**

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EASIER SERVICE
BETTER DUST-HOLDING CAPACITY **BIGGER PROFITS** **LOWER INVENTORY**
HIGHER DUST REMOVAL

It's a better filter from every angle!

Judge it from any angle . . . the R-P Self Seal Filter is a better deal for you! Built slightly oversize, it fits snugly into filter holder with a self-seal edge. Larger sized pads can be cut down slightly to fit smaller grids already installed—thus lowering pad inventory. Save the grids—replace only the filter pad—pocket the difference in profit! Write for data sheets on dust removal efficiency and dust holding capacities. Research Products Corporation, Madison 10, Wisconsin, Dept. A.

(Canadian Representative—Delhi Industries, Delhi, Ontario)

R P Self Seal FILTER
 for heating, ventilating and
 air conditioning systems

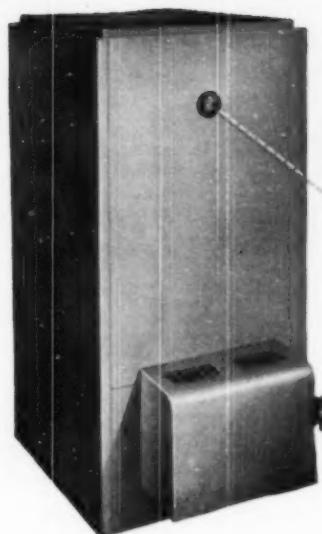


. . . PRODUCTS OF RESEARCH

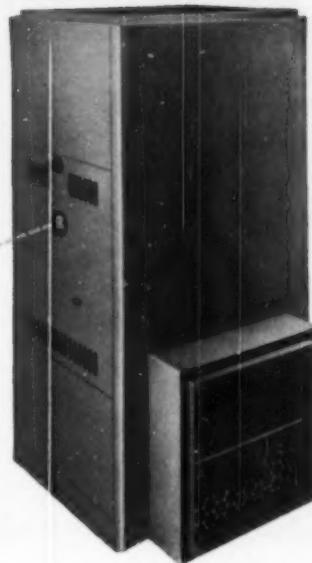
WASHABLE AND REPLACEMENT AIR FILTERS • GREASE FILTERS • EVAPORATIVE COOLER MATERIALS

2 NEW RICHMOND WARM-AIR UNITS

Designed for Economical Gas Heating of Low-Cost Homes—



This well-known Richmond Seal, proudly attached to every unit shipped, is your guarantee that Richmond standards in design, materials and craftsmanship are rigidly maintained.



Model SG—Gravity Warm-Air Unit—Made with heavy-gauge steel heat exchanger—finished in light-green hammertone baked enamel. Easily assembled. Simple, economical and trouble-free in operation. Made in two sizes: 70,000 and 90,000 Btu input per hour. A.G.A. approved.

Model SU—Forced Warm-Air Unit—Sturdy, rounded-corner casing. Made with heavy-gauge steel heat exchanger and finished with a light-green baked enamel steel jacket. Shipped assembled; two sizes: 85,000 and 110,000 Btu input per hour. A.G.A. approved.

Both Units Made in Two Sizes . . . giving you four new GAS-FIRED, high-quality, efficient heating units, ideally suited for use in low-cost competitive homes and home developments. Use the handy coupon at the lower right to get detailed data and specifications.

Vitrified China

Gas Boilers

Boilers and Cast Iron Ware

Water Air Conditioners
Gas-Cast Iron or Steel
Oil-Steel

RICHMOND

RICHMOND RADIATOR CO.—AFFILIATE OF REYNOLDS METALS CO.



See your wholesaler or mail coupon today.

Richmond Radiator Company
19 East 47th St.
New York 17, N. Y.

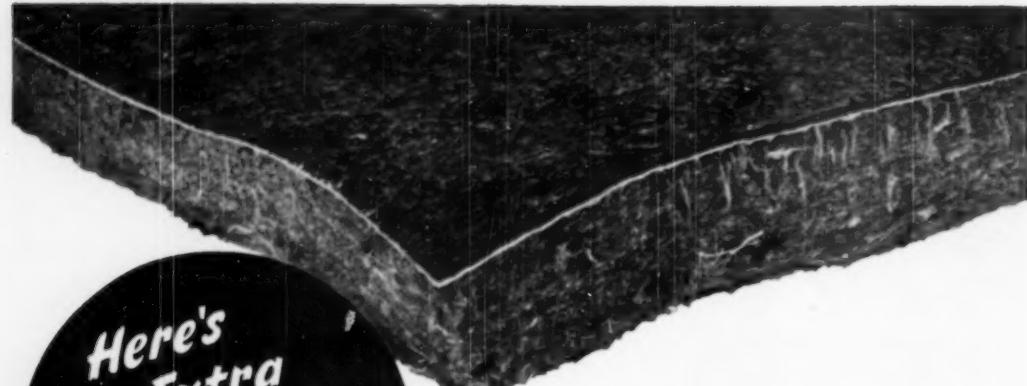
AA-6

Please send me additional information and literature on the new Richmond gas-fired, warm-air heating units. No obligation, of course.

Name _____

Company _____

Address _____



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An Extra
SELLING
"EDGE"
for You!



Grant Wilson DUX-SULATION

(ASBESTOS-PROTECTED)

FOR MAXIMUM TEMPERATURE CONTROL BETWEEN SOURCE AND REGISTER OR GRILLE

You give yourself an extra advantage over competition when you recommend Dux-Sulation for warm air heating, air conditioning or ventilating systems. Why? Because you're selling a *lot more* than a conventional duct job. You're selling a system that, once balanced, stays balanced—an installation that eliminates "call backs," that permits using the smallest possible heating or cooling unit . . . an installation that's quiet!

The building owner gets his Dux-Sulation investment back many times over in fuel savings alone; its efficiency, economy and extra comfort build priceless good will for both the Heating and the General Contractor. No matter how you look at it, selling Dux-Sulation is simply *good business* for you; it helps land business and *it keeps right on "selling" for you* long after the job is completed.

Dux Sulation is available in either $\frac{1}{2}$ " or 1" thickness in rolls 36" wide containing 100 square feet—convenient to stock and handle. Special tape and glue (included) make installation quick and simple. Inspect Dux-Sulation yourself; write Grant Wilson, Inc., 141 W. Jackson Blvd., Chicago 4, Ill., for FREE sample kit #2 A536.

Send for this FREE sample today . . .



Grant Wilson inc.
ASBESTOS and INSULATING MATERIALS

SECURITY

MODEL SFA AUTOMATIC GAS-FIRED

HI-LO COMBINATION

Now...The
TWO-IN-ONE
Furnace



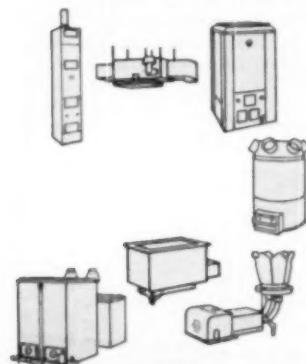
FOR
CLOSET
INSTALLATION



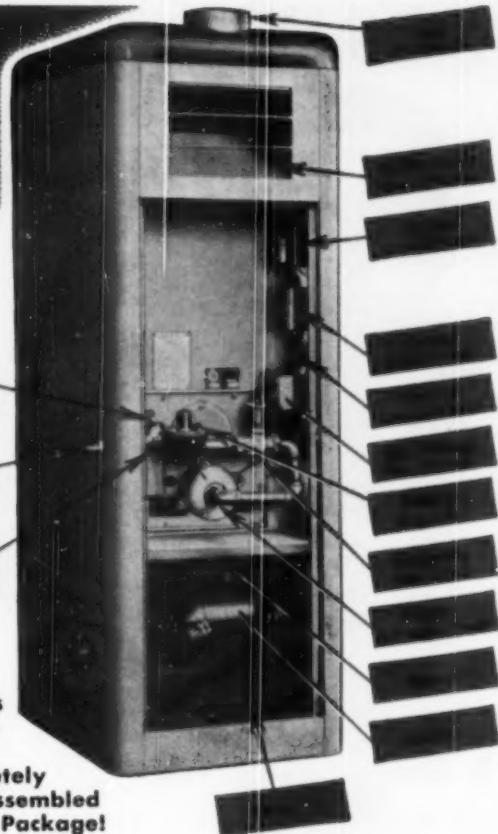
FOR
BASEMENT
INSTALLATION

INPUT
4 SIZES—62,500 BTU 80,000 BTU
100,000 BTU 125,000 BTU

Eliminates
Duplicate
Stock
... Completely
Factory Assembled
... in One Package!



The LONG-LIFE Line



Yes, sir . . . TWO-IN-ONE because only standard Security SFA Furnaces need be kept in stock. Factory-assembled and wired to serve in closet-type or usual basement-type installations. Return air duct connector for basement application is shipped knocked down . . . can be attached to the back or to either side in a matter of minutes.

Simple to Service . . . Easy Access

All controls are located in one compartment. Quick, accurate adjustments . . . easy replacements are expedited without disturbing other wiring. Built-in filter racks can be placed at installer's option.

Built of top-quality materials throughout. Complete information, specifications, prices and discounts available. Write today!



Builders of the famed
Security Heavy Duty
Water Heaters!

SECURITY MANUFACTURING CO.

1630 Oakland Ave.

Kansas City 3, Mo.

BOB BRIGGS,
Viking Salesman Says:



**Don Mager Proves There's
No Blower like a Viking
when it comes to Salability**

MAGER SAYS:

**"Viking Quality Leads
the way to a
400% increase
in Blower Package Sales
for the Heating Trade Supplies Co.
Toledo, Ohio"**



"I only wish we had discovered Viking sooner," says Don. "Last year with another line I didn't pay much attention to blower packages, but this year with Viking quality to sell, it sure makes a difference."

• Don Mager is a salesman for Heating Trade Supplies Co., of Toledo, Ohio. His amazing success selling Viking Blowers is no surprise to Bob Briggs, or anyone else who knows Viking quality. No other blower package on the market has so much to offer the jobber, the dealer, and the consumer. Viking quality, dependability, attractive appearance, and design add up to a sellable product. Are you getting your share of the profits?



**WALTER ABBENZELLER, Pres.
HEATING TRADE SUPPLIES CO., Toledo, Ohio**

"I never thought we could sell so many blower packages," states Mr. Abbenzeller. "A lot of the credit belongs to Don Mager, who has done an outstanding job, but I don't think he could have done it without that Viking quality to back him up."

SEE WHAT THESE SATISFIED TOLEDO DEALERS SAY:



C. B. MILLS, H. & M. Heating Co.
2925 TREMAINSVILLE, TOLEDO, OHIO

"Sure, Mager sold me on pushing Viking Blower Packages. And why not? I'm in business to make profits."



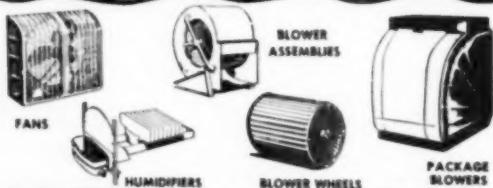
WALTER HEIGLE
970 POST ST., TOLEDO, OHIO

"Viking appearance and design makes a big difference when you're selling the consumer. I've never seen a blower package I like better."

AL GOGOLIN, Gogolin Heating Co.
1114 JACKSON ST., TOLEDO, OHIO

"Viking Blower package sales are a source of extra profit. I think any dealer is smart to be on the lookout for blower prospects."

Viking
AIR CONDITIONING CORP.
5601 Walworth, Cleveland 2, O.



**Get The Most for Your
Oil Heater Dollars...**

**Buy The Heater
with This  Control**

**the OIL CONTROL
BACKED BY A NATION-
WIDE Factory-Trained
SERVICE ORGANIZATION**

When the oil heater line you stock and sell is equipped with A-P Safety Oil Controls you can promise *extra value* in heating satisfaction to every customer. That's a performance-proven fact.

And to back up that promise, A-P has established special Service Stations in leading cities throughout the Nation to serve you. Each is factory-staffed with factory-trained service engineers, equipped with the latest of factory-designed test equipment. That's your final — and finest — guarantee that every A-P controlled heater will give your customers years of heating convenience and economy.

Another Important Advantage

Every A-P Controlled Oil Heater can mean an EXTRA sale to you. You can offer every customer the extra convenience of "Dial-Controlled" heating, with A-P COMFORT MASTER Thermostatic Kit — and Automatic Fuel Pumping with the A-P OILIFTER. Write today for complete selling information on these NATIONALLY ADVERTISED Oil Control Accessories.



**A-P COMFORT MASTER
Thermostatic
Oil Control Kit**



**A-P OILIFTER
Automatic Fuel
Pump**

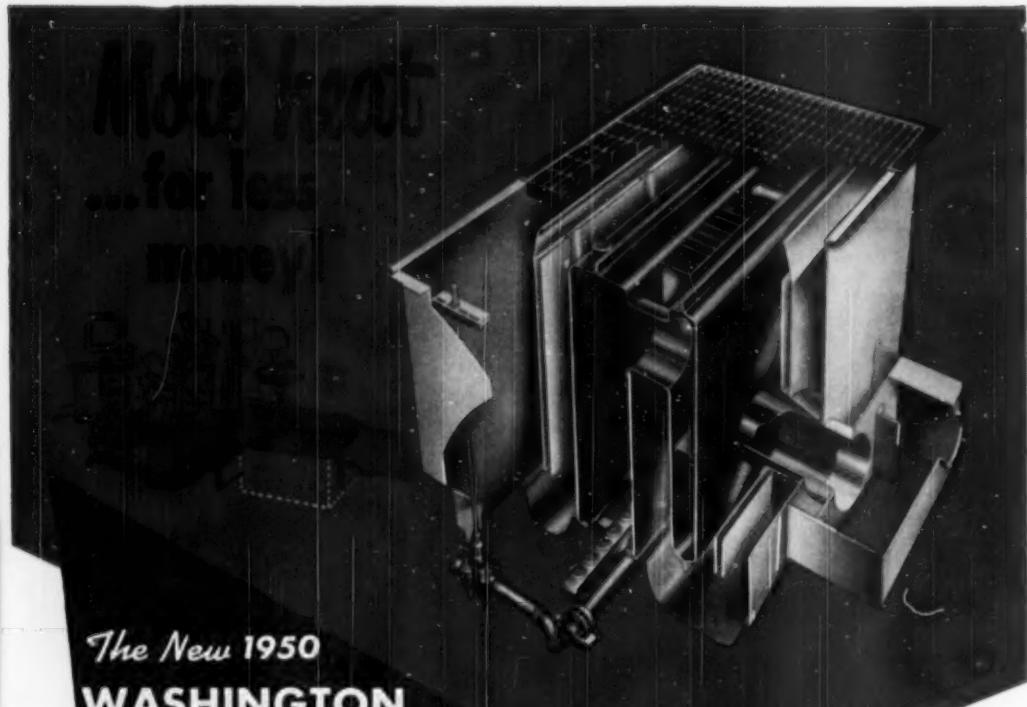
AUTOMATIC PRODUCTS COMPANY
2452 North Thirty-Second Street • Milwaukee 10, Wisconsin



DEPENDABLE

SYMBOL OF BETTER OIL HEATING

Controls



The New 1950
WASHINGTON
Frugal
**GAS FLOOR
FURNACES**



GRAY & DUDLEY CO., Dept. AA
Nashville 3, Tenn.

Gentlemen:

Please send me information on WASHINGTON FRU-GAL GAS FLOOR FURNACES.

NAME

COMPANY

CITY

— 10 —

ZONE STATE

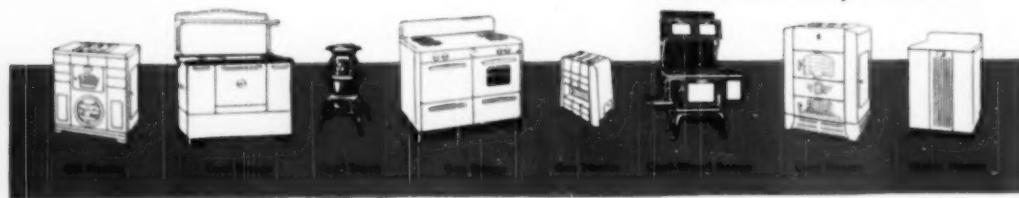
Flow units are available for low cost housing construction, requiring no basement, excavation, expensive plumbing or air ducts, these units are factory assembled for quick, easy installation. Input ratings are 35,000 B.T.U., 50,000 B.T.U., and 70,000 B.T.U. for natural or manufactured gas, slightly lower for bottled "LP" gas. Sizes range from 32" x 22" to 42" x 24" overall. All models are equipped with rust proof burner ports and Baso 100% Safety Shut-off Valve with Pilot. The outer casing is of heavy gauge steel, triple coated to resist corrosion. All units are current A. G. A. approved and carry a ten year guarantee not to rust or burn out.

Established 1862

GRAY AND DUDLEY CO.
Nashville 3, Tenn.

Nashville 3, Tenn.

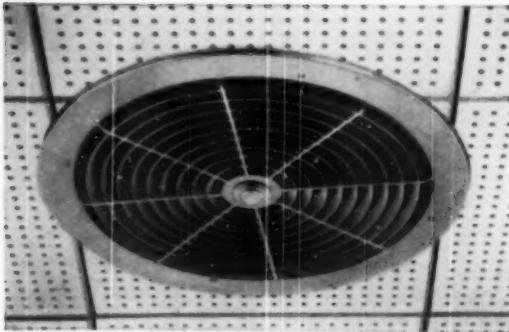
The most complete line!





Your **BEST** Buy Costs No More!

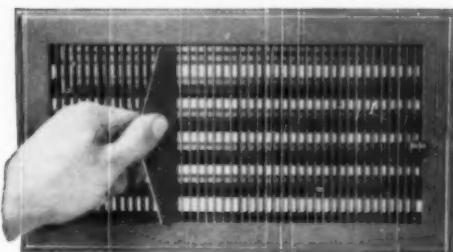
Using inferior quality registers is a hard way to build a good heating reputation. Buying inferior quality when *first* quality costs no more isn't using the best business judgment. Have you compared your present line with the outstanding values always available in the U. S. register line?



U. S. No. 500 CEILING OUTLET

The superb value of this New Round Ceiling register defies comparison. Nothing in the field has equalled it in its performance—or equalled its wonderful reception by dealers and heating system buyers!

The No. 500 Ceiling Outlet comes in 5 sizes—6"—8"—10"—12"—14"—with sponge rubber gaskets. It can be used with rectangular or round ducts or pipe with the No. 900 installation frame. By all means send for complete information today about this sensational New Development for Residential and Commercial Installation.



No. 256 4-WAY FLOW AIR-CONDITIONING REGISTER

Surpasses all others in flexibility of usages, quality, and performance. It is made in all standardized sizes—also available in the greatest number of sizes for commercial jobs of any line in the field.

GOOD NEWS!

Electroplating is back! Now you can get all shades of bronze, plus nickel, chrome, or cadmium finishes for those particular extra-special jobs. Ask for price quotations.

DON'T MISS —Write —today—for the beautiful new No. 51 Catalog. Size 8½" x 11" to fit your files. Has 72 pages showing the complete U.S. line in pictures with complete specifications and prices.

UNITED STATES REGISTER COMPANY

BATTLE CREEK, MICHIGAN

MINNEAPOLIS •

KANSAS CITY •

ALBANY

SOLD BY LEADING JOBBERS FROM COAST TO COAST



Top performance for tough jobs!

Chevrolet P-L Truck performance consists of many things. There is Chevrolet design—brilliant and functional—design with a purpose. There is Chevrolet construction—sturdy and dependable—for lasting usefulness.

And there is Chevrolet power—power to deliver the goods—more power than Chevrolet trucks ever had before. Two great valve-in-head engines—the Load-Master 105 h.p. and the Thrift-Master 92 h.p.—make these the most powerful Chevrolet trucks ever built.

These new P-L models are far ahead in features, too; yet they cost surprisingly little to buy, to operate, to maintain. And that adds up to value—the kind of outstanding value that year after year makes Chevrolet America's fastest selling truck.

CHEVROLET MOTOR DIVISION, General Motors Corporation, DETROIT 2, MICH.

LEADING WITH ALL THESE PLUS FEATURES:

- TWO GREAT VALVE-IN-HEAD ENGINES: the New 105-h.p. Load-Master and the Improved 92-h.p. Thrift-Master—to give you greater power per gallon, lower cost per load • THE NEW POWER-JET CARBURETOR: smoother, quicker acceleration response • DIAPHRAGM SPRING CLUTCH for easy action engagement • SYNCHRO-MESH TRANSMISSIONS for fast, smooth shifting • HYPOID REAR AXLES—5 times more durable than spiral bevel type • DOUBLE-ARTICULATED BRAKES—for complete driver control • WIDE-BASE WHEELS for increased tire mileage • ADVANCE-DESIGN STYLING with the "Cab that Breathes" • BALL-TYPE STEERING for easier handling • UNIT-DESIGN BODIES—precision built.

CHEVROLET

P*L

ADVANCE-DESIGN TRUCKS

P* Popularity Leaders

Chevrolet trucks outsell all others. In every postwar year truck users have bought more Chevrolets than any other make—proof of the owner satisfaction they have earned throughout the years.

P* Performance Leaders

The new Chevrolet P-L trucks give you high pulling power over a wide range of usable road speeds—and on the straightaway, high acceleration to cut down total trip time.

P* Payload Leaders

The rugged construction and all-around economy of Chevrolet P-L trucks cut operating and repair costs—let you deliver the goods with real reductions in cost per ton per mile.

P* Price Leaders

From low selling price to high resale value, you're money ahead with Chevrolet trucks. Chevrolet's rock-bottom initial cost—outstandingly low cost of operation and upkeep—and high trade-in value, all add up to the lowest price for you.



Lima

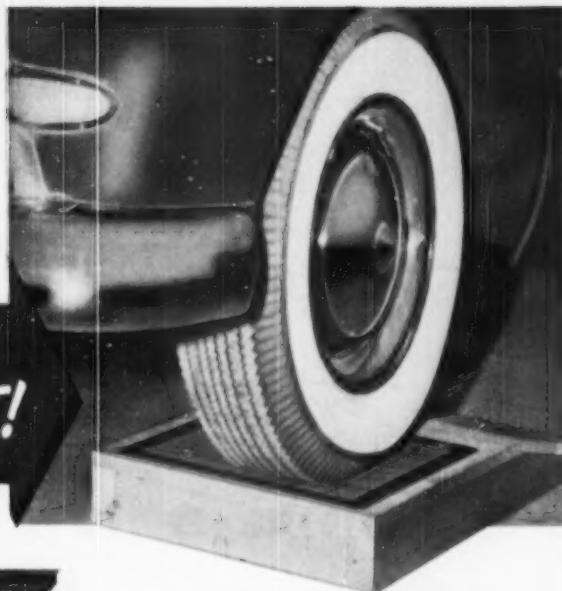
"WORLD'S
STRONGEST FLOOR REGISTER"

AND THIS **CRUSHING
TEST PROVES IT!**

BEFORE



AFTER



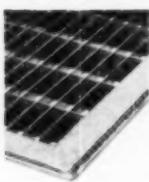
Talk about STRENGTH! Look what happened when the front wheel of an automobile was driven onto a Lima Floor Register! It was scarcely bent, as these graphic before-and-after photos reveal . . . proving that Lima Floor Registers will stand up under virtually all conditions of wear and abuse! The secret? Solid, one-piece, welded steel grids and frames . . . plus "smash" welded corners, off-set for extra rigidity!

Talk about BEAUTY! Lima Floor Registers are sleek and smooth, finished in new *Duragold*, a rich, gold-hammered appearing finish that harmonizes with all floor treatments. So resistant to high temperatures that wear is hardly detectable even after 3 years under heavy traffic! Also available in smart oak grain finish. Available in all popular sizes and any quantities. Prompt delivery. Order today.

**NO EXTRA COST FOR THESE EXCLUSIVE
LIMA FLOOR REGISTER FEATURES!**



Smooth, seamless face with smash-welded corners! No unsightly angles!



Wear-resistant Duragold finish harmonizes with any floor treatment.



Crossed-girder grille . . . bars resistance-welded at every joint for strength!

**SAVE TIME, LABOR AND MONEY
with *Lima* WALL REGISTERS**

Exclusive "Balancing Bell"® control slashes hours from installation time because it eliminates quadrant dampers, simplifies balancing! One man does the job, does it better. No more service calls for re-balancing because homeowner can do it himself! Smart, streamlined, electrostatically painted, Lima Wall Registers are truly the world's finest! Fill your stocks now!



©Patent applied for

THE *Lima*
REGISTER COMPANY
LIMA, OHIO

SEND COUPON TODAY!

LIMA REGISTER COMPANY
651 N. Baxter Street, Lima, Ohio

Dept. AA 6-50

Gentlemen:
Please send me free descriptive material on the complete line of Lima registers and faces for installation in walls, baseboards and floors.

Name

Address

City Zone State



THEY* "BOOTED OUT" SALAMANDERS



THEY INSTALLED DRAVO HEATERS



THEY SAVED \$4,372⁰⁰ PER YEAR

*Rosedale Foundry and Machine Company, Pittsburgh, Pa.



Like many other metalworking plants, Rosedale, producers of Meehanite Metal castings, depended for years on salamanders for heating. Everyone assumed that any more modern method would cost too much, and probably couldn't heat the high-roofed, metal structure much better anyway.

But no one was happy about the situation. Coke and labor were big cost items. Production was lost while men "thawed out." Air was smoky and sulphurous.

So Rosedale investigated, and found (1) that Dravo Counterflo Heaters could do the job for LESS cost than salamanders, (2) that Dravo was already heating many similar structures with complete satisfaction, and (3) that Dravo Heaters would help clear up the polluted atmosphere.

Result: four Dravo Counterflo Heaters were installed, eliminating 39 salamanders. Yearly cost-reduction is \$4372. Even with 25% annual amortization, this company is currently saving \$500 a year. After four years the investment will be completely written off, and the entire saving will be velvet. The indirect savings—improved production, greater employee comfort, elimination of coke fumes, and saving in floor space—are extra dividends. Everybody's happy about the heating now.

No one can afford, today, to put up with old-fashioned, inadequate heating equipment—any more than to use old-fashioned production machines. Let us review your heating problems, and provide you with some specific examples of the savings Dravo Counterflo Heaters are making for others—and that they can make for you. Consult your classified telephone directory for the name of the local representative—or write us direct.

DRAVO
CORPORATION
DRAVO BUILDING, PITTSBURGH 22, PA.

Dravo also manufactures the DRAVO CRANE CAB COOLER for air conditioning hot-metal crane cabs.

PITTSBURGH • CLEVELAND • PHILADELPHIA • DETROIT • NEW YORK • CHICAGO • ATLANTA • BOSTON

Sales Representatives in Principal Cities. Mfd. and Sold in Canada by Marine Industries, Ltd., Sorel, Quebec

Export Associates: Lynch, Wilde & Co., Washington 9, D. C.



Enroll now for greater earnings!



HEATING CONTROLS FACTORY TRAINING SCHOOL

A new class starts every Monday—a three-day course of expert instruction on the operation, installation and servicing of

Automatic Heating Controls for Oil, Gas and Coal Fired Units



The Milwaukee School of Engineering, founded in 1903, is outstanding in the field of electrical engineering. The study of automatic controls and heating systems has been a major part of the school's program for years. Perfex, in conjunction with the school, has packed into a three-day course answers to your heating problems and servicing... fundamentals of heat, electricity and control components... instructions on heating systems, control operation, and field service engineering

... plus the study of control manufacture at the Perfex plant. This course will save you time and material... will eliminate costly "call-backs". It will give you the added sales plus of a staff of "Control Specialists".

AND HERE'S HOW PERFEX HELPS YOU TO PROFIT FROM THESE INSTRUCTIONS—Each trainee receives a diploma and identification card certifying that he is a Perfex "factory trained" Control Specialist. To tell your customers of this expert service, Perfex also furnishes three announcement mailings, newspaper ad mats, and colorful decals for trucks and tool kits.

THIS COURSE IS OFFERED

FREE

by Perfex Corporation in conjunction with
Milwaukee School of Engineering for
dealers, wholesalers, salesmen, servicemen

Perfex furnishes instructors, apparatus, and all educational equipment. All you pay for is room and board (approx. \$25 a man) plus transportation to Milwaukee. Classes are limited in size—send coupon now.

FIRST CLASSES START JULY 10, ENROLL NOW >

PERFEX CORPORATION

500 West Oklahoma Ave.,
Milwaukee 7, Wis.

We are interested in enrolling (no.) men in the Perfex course starting (date). Please confirm and send us necessary details. Reserve hotel rooms at the following rate: \$3 \$3.50 \$4

Company.....

Individual.....

Street..... Zone.....

City..... State.....



Classroom discussion



Technical training



Practical application

Performance
with a capital



PACKARD fractional horsepower MOTORS

There is no question about the outstanding performance record of Packard fractional horsepower motors—their proved ability to create customer good will and increase the value and trade acceptance of your products.

Hundreds of thousands of Packard quality motors—all marked by rugged design, expert workmanship and finest materials—stand as evidence of this superiority.

Packard specializes in the manufacture of fractional horsepower motors. Our resources . . . our experienced engineering and manufacturing know-how in motor building have been concentrated for the past 34 years in this one field.

That's why Packard's reputation for plus-performance is described in capital letters—why it will pay you to specify Packard fractional horsepower motors . . . for quick service, complete satisfaction and lasting dependability.



Packard
TRADE MARK

Packard Electric Division, General Motors Corporation
Warren, Ohio

DEPENDABLE APPLIANCE MOTORS FOR THIRTY-FOUR YEARS

So there's a different way to count profits?



Some say that profit depends on the number of dollars that flow into the till. But there's a surer way to count profits on heating equipment. It's simply knowing how many of those dollars stay in the till!

Take the dealer who sells Bryant automatic gas heating. He keeps more dollars because Bryant equipment requires fewer man-hours for installation, fewer service calls. He also has Bryant experts to help him on his engineering problems.

Again, he saves more because a share of his local advertising cost is paid under the Bryant co-operative plan. In addition, Bryant's powerful national advertising keeps sending prospects to him, making his selling expense lower.

No question about it, Bryant is the line if you look carefully at the profit picture. And the coupon below is a handy way to say you're interested.



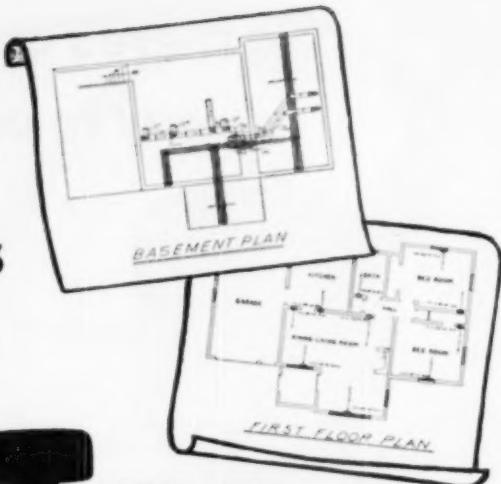
The most complete line of gas heating equipment in the nation

•••
Bryant Heater, Dept. 194,
17825 St. Clair, Cleveland, Ohio
•••
 Send me the new booklet that tells
the Bryant story. Have your dis-
tributor call on me.

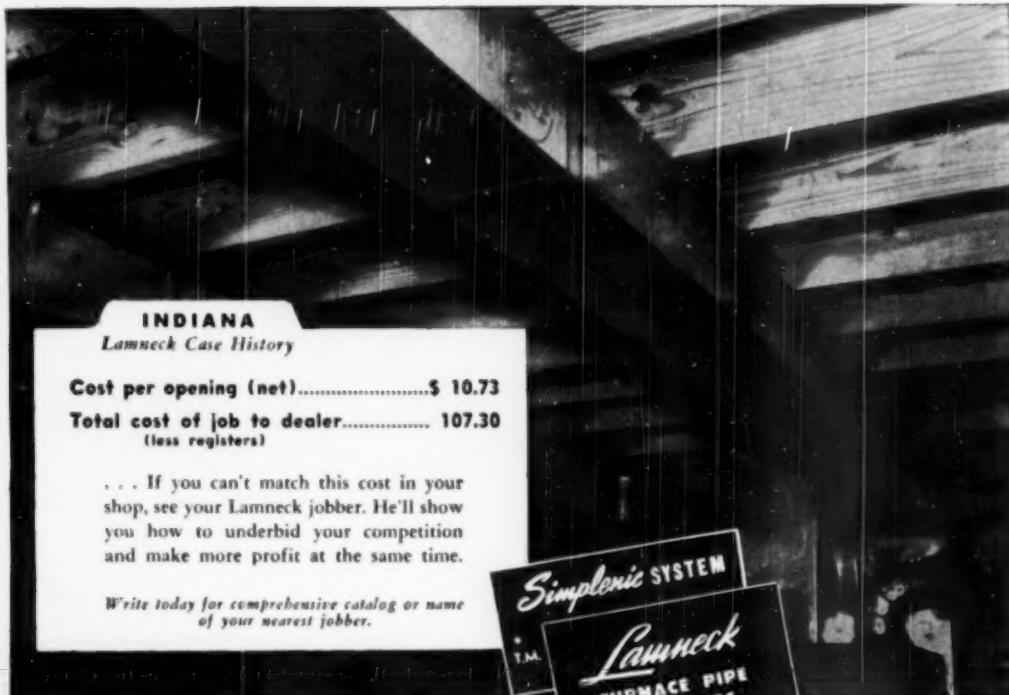
•••
Name _____
Company _____
Address _____
City _____ State _____
•••



with
Lamneck
you can match this
actual installation



COST **\$10.73 per**
opening



INDIANA
Lamneck Case History

Cost per opening (net).....	\$ 10.73
Total cost of job to dealer.....	107.30 <small>(less registers)</small>

... If you can't match this cost in your shop, see your Lamneck jobber. He'll show you how to underbid your competition and make more profit at the same time.

Write today for comprehensive catalog or name of your nearest jobber.

Simplex SYSTEM
T.M.
Lamneck
FURNACE PIPE & FITTINGS

ANOTHER GREAT **C&L** PRODUCT

Clayton & Lambert Mfg. Co.
Louisville, Ky.

NIAGARA

BUYER'S GUIDE FOR SHEET METAL WORKERS



Niagara Extra Heavy Snips cut 16 gauge mild steel.



Niagara Double Cutting Shear for cutting cylinders to length.



Niagara Bench Shear for heavy duty hand shearing.



Niagara Bench Plate for rigidly mounting stakes, bench shears, etc.



Niagara Straight Edge for accurate layout work.



Niagara Circumference Rule graduated in inches and circumferential equivalents.



Niagara Raising Hammer for convex or concave forming.



Niagara Stakes made in a complete line of essential shapes and sizes.

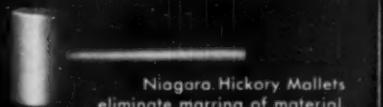
• The hand tools shown on this page are just a few of the hundreds of machines and tools which are helping sheet metal workers do better work with less effort and lower cost. Men who take pride in their work find there is economy in Niagara proven high quality. Niagara has been a quality name since 1879. Ask your dealer or write for information in regard to America's most complete line of machines and tools for plate and sheet metal work.



Niagara Gutter Beader designed for convenient operation.



Niagara Hand Seamer for finishing standing seams on roofing.



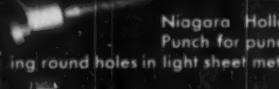
Niagara Hickory Mallets eliminate marring of material.



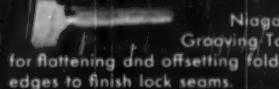
Niagara Pipe Crimper for thicknesses up to 22 gauge.



Niagara Handy Tongs for bending light sheet metal in the shop or on the job.



Niagara Hollow Punch for punching round holes in light sheet metal.



Niagara Grooving Tool for flattening and offsetting folded edges to finish lock seams.



Niagara Rivet Set made of alloy tool steel, heat treated.

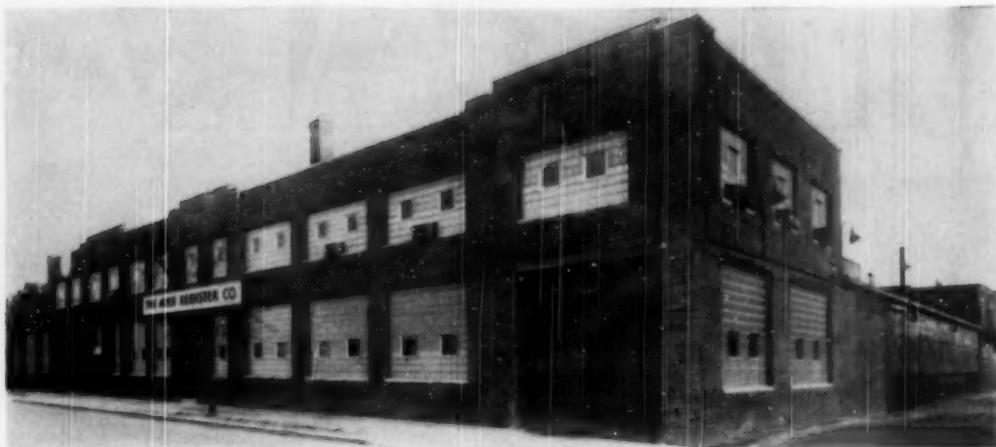


Niagara Riveting and Setting Hammers have forged steel heads, heat treated, polished and fastened to handle with steel wedges.



Niagara Wood Roofing Folder for light weight, low cost folding.

NIAGARA MACHINE & TOOL WORKS • BUFFALO 11, NEW YORK
DISTRICT OFFICES: DETROIT • CLEVELAND • NEW YORK



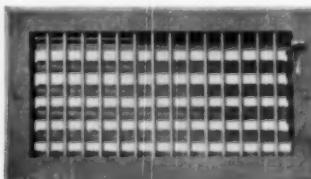
A New Home for the AUER / REGISTER Organization!

Greater demand for all our products has made it necessary for us to expand production facilities. We have purchased and now occupy the large and up-to-date plant shown above, which gives us greatly increased working area (50,000 sq. ft.), houses all of our activities under one roof, and also permits us to streamline the production and finishing of all Auer Registers and Grilles. Additional new automatic processing, handling, and conveyor equipment for this plant—the most modern and efficient available—is now in place and func-

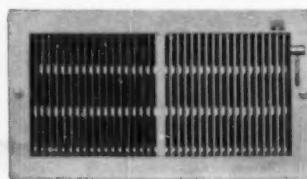
tioning. This will allow us to speed up the production of all Auer models, and, we believe, not only to maintain but to enhance their quality. It will also enable us to hold to a minimum the cost to you of Auer Registers and Grilles.

In this new home we expect to be able to serve you even better than in the past 40 years, and to make it still more worth your while to consider this Company your standard source of supply for all heating and air conditioning register needs.

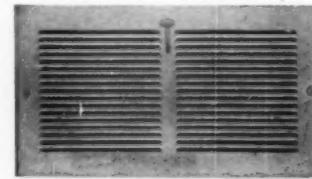
*Write for complete Auer Register Book—
or separate Catalog "G" on perforated Grilles.*



No. 1005V-HML—Streamliner Register with single bank of vertical bars, multi-louvre shutters



No. 4432—Airo-Flex Multi-valve Register—
4-Way Directional



No. 7032—Airo-Flex Single Valve Register—
Adjustable Fins

THE AUER REGISTER COMPANY

6600 Clement Avenue,

CANADIAN DISTRIBUTOR, MARCHAND FURNACE, LTD., TILBURY, ONT.

Cleveland 5, Ohio

Auer **REGISTERS**
& GRILLES for AIR CONDITIONING & GRAVITY

WEIR-MEYER SALES WILL SELL YOU!

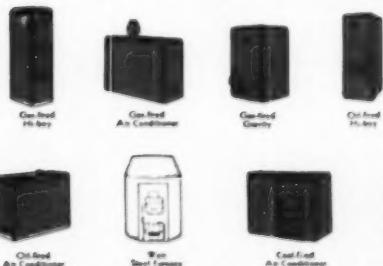
WEIR-MEYER MEANS
MODERN HEAT

These two lo-boys pack a double-punch to beat competition - traditional Weir-Meyer quality and a definite price advantage, too.

GAS
Meyer
Series A-1
Lo-Boy
Gas-fired Furnace
Input 105,000 Btu. hr.

OIL
Meyer Series A-1 Lo-Boy Oil-Fired Furnace
available with either
pressure or
vaporizing burner. Output
at bonnet: vaporizing oil,
80,000 Btu hr. pressure oil,
96,000 Btu hr.

THE MEYER FURNACE COMPANY
General Offices: Peoria 2, Illinois



MEYER FURNACE CO.
Dept. PO2, Peoria 2, Illinois

Gentlemen:

Please rush full details on Weir-Meyer Protected Dealerships at no obligation.

NAME _____

ADDRESS _____

Manufacturers of Weir & Meyer Furnaces • Air Conditioners for Gas—Oil—Coal • Factories: Peoria and Peru, Illinois



TEAMING UP... to Keep Costs Down

Ben Faragalli is an assembly man in one of RCA Victor's television manufacturing plants. His job is final assembly of RCA Victor TV receivers.

His experience is that RB&W tapping screws help him keep up his production and turn out quality work. Their surfaces are always smooth and clean—so they are easy to handle. Their dimensions are always accurate, their threads sharp, their heads strong—so they speed his work and reduce rejects.

Ben helps RCA Victor keep assembly cost low—which is reflected in lower total manufacturing costs and more profitable business.



Joseph Luzzi is in charge of RB&W's carburing—a surface-hardening process which produces a deep and uniform case and enables men like RCA Victor's Ben Faragalli, using RB&W tapping screws, to do faster work.

It is one of many processes in which RB&W bolts, screws, nuts and rivets receive specialized treatment dictated by customers' individual requirements. Breadth of facilities is one of the reasons why RB&W tapping screws, cap screws, machine bolts, carriage bolts, machine screws, nuts, rivets and other fasteners are considered "first choice" by so many of America's leading manufacturers.

RB&W

The Complete
Quality Line

RUSSELL, BURDSALL & WARD BOLT AND NUT COMPANY

Plants at Port Chester, N. Y., Coraopolis, Pa., Rock Falls, Ill., Los Angeles, Calif. Additional sales offices at: Philadelphia, Detroit, Chicago, Chattanooga, Oakland. Sales agents at: Portland, Seattle. Distributors from coast to coast.

105 Years Making Strong the Things That Make America Strong



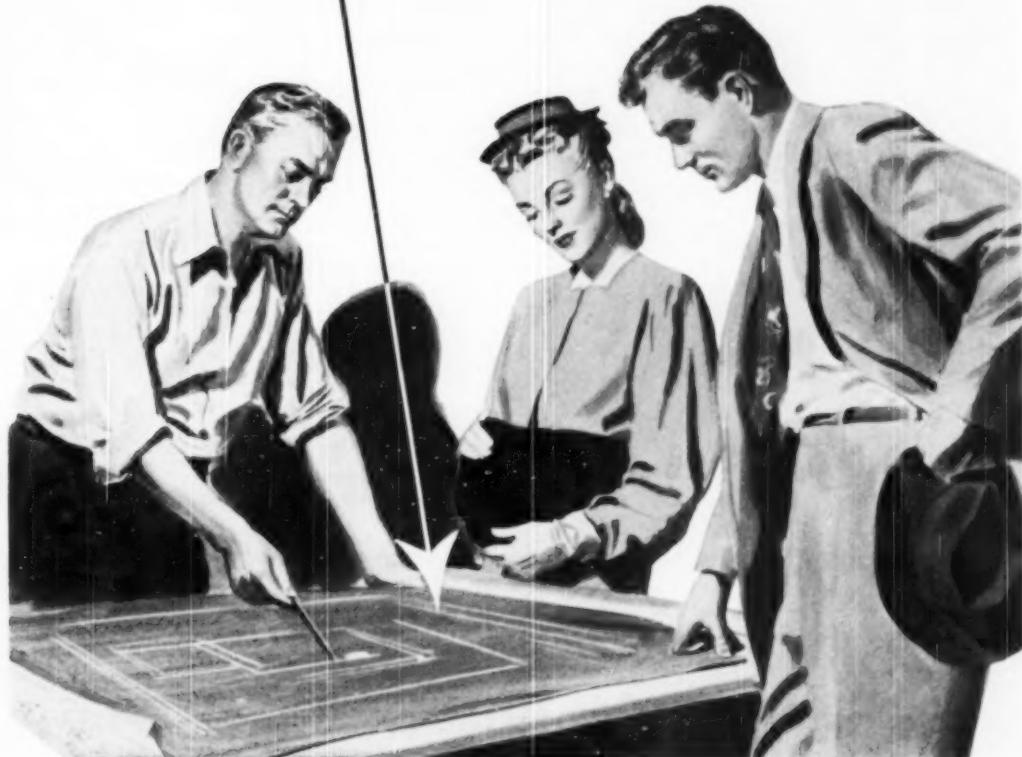
Here is warm
air heating comfort
that can't
be matched!

Temperature varies no more than 4° floor-to-ceiling
... 24-hours a day! A constant circulation of gentle
warmth replaces the alternately over-warm and
slightly chilly effect common with ordinary stop-and-
go systems. Superfex is different in principle, differ-
ent in design, different in the heating result delivered.

The three-stage principle (pilot to coozer to high
fire) automatically adjusts the heat level—and with
synchronized high-low blower action, provides a
continuous positive flow of filtered and humidified
warm air. There are many other exclusive features
that can be promised because every feature has been
tested and proved under severe conditions. That's
why architects and heating experts recommend it!
That's why *you* should investigate it *now!*

Superfex FURNACES

△ PERFECTION STOVE COMPANY
7193-C Platt Avenue • Cleveland 4, Ohio
A COMPLETE LINE OF WINTER AIR-CONDITIONING FURNACES
GAS AND OIL





Churches . . .
Public Buildings . . .
Institutions . . .
are all built
for permanence

when you recommend
and use

HUSSEY COPPER
ROOF DRAINAGE
PRODUCTS

Your customers know that copper means quality and they gladly will pay the slight extra cost for its life-time durability and trouble-free performance.

Copper means business to you through increased initial profits and through the repeat business that comes from good workmanship and a wise choice of materials. Your customers can't afford less than permanence. Sell the lasting value and permanent protection of Hussey Copper for all roof drainage products.

PRODUCTS

Copper Sheets . . . Rolls . . . Flashing . . . Roofing . . .
Conductor Pipe . . . Eave Troughs . . . Ridge Rolls
Fittings . . . Nails . . . Brackets and Accessories

HUSSEY

C. S. HUSSEY & COMPANY

1000000 Square Feet of Copper Roofing
7000000 Square Feet of Copper Flashing
1000000 Square Feet of Copper Roofing
1000000 Square Feet of Copper Flashing
1000000 Square Feet of Copper Roofing
1000000 Square Feet of Copper Flashing

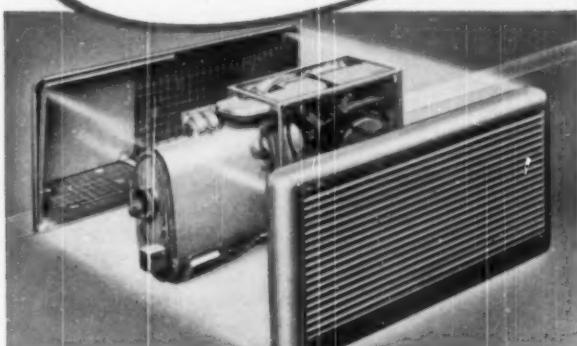
7 KEY WAREHOUSES

for COPPER, BRASS, BRONZE

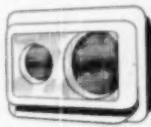
Here's the profitable inside story on STEWART-WARNER "Safety-Sealed" HEATING

No larger than a suitcase, this versatile, compact unit is a complete and independent gas heating system that...

- Provides dependable, low-cost zone heating!
- Vents all combustion products through a "Safety-Sealed" exterior wall vent!
- Uses no room air for combustion!
- Can be recessed into any inside or outside wall!
- Automatically self-modulates heat flow!



Finger-Tip Heat Control with a conveniently located modulating thermostat.



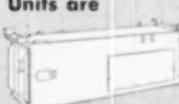
Small Housing for Exterior Vent—Eliminates chimney or room flue connection. Screened against insects and dirt.



"Safety-Sealed" Combustion-Chamber is hermetically sealed, all-welded stainless steel. Positively seals all combustion products from contact with room air.



These Stewart-Warner Units are "Safety-Sealed," Too!



SAF-AIRE WALL FURNACE No electricity required. No moving parts to maintain. Wall-mounted, recessed into wall. Large and small models available in Ivory, Beige, White or Aluminum finish.

SOUTH WIND ZONE FURNACE Compact, forced-air unit, easily tucked away under the floor, in a closet or in convenient space. Short ducts from centralized installation. Thermostat control.

Now you can sell the recognized advantage of zone-controlled heat in a "packaged" unit. This remarkable new South Wind 988 features Stewart-Warner's famous Safety-Sealed heating principle that positively seals all combustion air from contact with room air. Only outside air is used for combustion. And all combustion products are vented directly through a small exterior wall vent.

Easy to install in any inside or outside wall, this independent gas-heating system has a rated output of 31,000 BTUs per hour. Heats any room or group of rooms with a steady, gentle flow of forced-air heat, controlled automatically by a self-modulating thermostat.

Each zone or group of rooms is heated to its individual requirements by a separate, independent South Wind unit. Maximum comfort at minimum expense is achieved—without waste of room, closet or basement space! Just set each thermostat to the desired level—then forget it!

WRITE NOW

for complete, free information and specifications on the complete line of Stewart-Warner "Safety-Sealed" Gas Heating Systems. Select dealerships are still available in some territories. Address inquiries to 1575 Drexel St., Indianapolis 7, Indiana.



Approved by American Gas Association

STEWART *Safety Sealed* **WARNER**
DOMESTIC HEATING



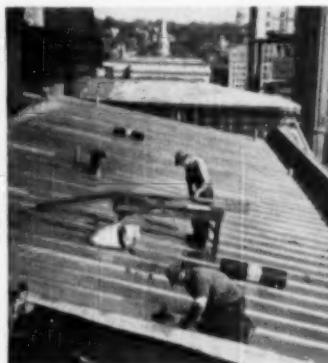
All the Blachers agree:

"...fabricating and installing a Monel roof involves no extra time or labor costs"

Here are Mr. Joseph Blacher (seated) and his three sons — from left to right, Simon, David and Sol — of Burgess and Blacher Co. This firm has 35 years of continuous experience in the roofing and sheet metal business behind it.



Laying out one of the standing-seam pans of the section of Monel roof recently installed on the Providence, R.I., City Hall by Burgess and Blacher Co.



Three thousand pounds of Monel Roofing Sheet were used in installing the first section of the new roof on the Providence City Hall. Monel roofs, whether fabricated in the shop or on the job, can be completed by an average number of workmen in the usual length of time.

Like all other roofing and sheet metal shops, Burgess and Blacher Co., Roxbury, Mass., must get their work out on schedule. They can't afford to have it cost more to put through the shop than they figured on. That's why the properties of Monel® Roofing Sheet are so important.

Easy to work with

From all standpoints — the roofer's, the architect's and the building owner's — Monel is just about as good as a metal can be for general roofing and sheet metal work. It's easy to cut and bend. It solders readily. And the joints have plenty of strength.

Mr. Joseph Blacher of Burgess and Blacher Co., puts it this way: "Here in our shop we've found that fabricating and installing a Monel roof involves no extra time or labor costs. Our men form, lay, seam and solder Monel just as they do other roofing metals."

And once a Monel roof has been installed, it delivers "life-of-the-building" protection!

Here's why this is true. Monel is rugged — and rustproof. It is strong and tough and hard. It resists atmospheric corrosion. It withstands deformation during installation ... and impact, abra-

sion and repeated flexing after installation.

How customers save

With a metal like Monel, you can use lighter gauge sheet — and save money for your customers. On a batten seam roof, for example, it is frequently possible to reduce sheet thickness by two full gauges. Greater reductions can often be made on louvers, gutters, ventilators and other roofing parts.

These bulletins helpful

Two recently-published bulletins, "Monel Roofing Sheet — Basic Application Data" and "The Soft-Soldering of Monel Roofing Sheet," are yours for the asking. You'll find them helpful in providing answers to customers' questions, or in giving your own men some corner-cutting hints for use on actual Monel installations.

For your free copies, just use the coupon below. With the bulletins, you also get a test sample of Monel Roofing Sheet. Try it out any way you like — cut it, bend it, solder it — and see for yourself how easy it is to work with economical, soft-temper Monel sheet!

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York 5, N.Y.

MONEL®...FOR THE LIFE OF THE BUILDING

Send Today
for free test
sample and
helpful bulletins!



Architectural Section
The International Nickel Company, Inc.
67 Wall Street, New York 5, N.Y.

Without obligating me in any way, please send me your two bulletins for roofing contractors, and free test sample of soft-temper Monel Roofing Sheet.

NAME.....

STREET.....

CITY..... ZONE..... STATE.....

A.A. 6-56

News Round-Up



Warm Air Furnace Shipments

SHIPMENTS OF WARM AIR FURNACES during the month of February 1950 showed an increase over shipments for the same month in 1949. Total shipments for February 1950 were 45,618 units compared to 33,125 units for February 1949. These figures have been compiled by the Bureau of the Census of the Department of Commerce.

Breaking down the February shipments into types of fuel gives the following percentages: Coal fired units, 6,788 or 15 per cent; oil fired units, 14,248 or 31 per cent; and gas fired units, 24,582 or 54 per cent. Automatic heating units accounted for 85 per cent of the shipments.

The rise in shipments continued during the month of March. Total shipments increased to 59,982 during that month compared to 41,376 during March 1949.

Division of furnaces according to types of fuel gives the following figures: Coal fired units, 5,330 or 9 per cent; oil fired units, 18,348 or 31 per cent; and gas fired units, 36,304 or 60 per cent. Automatic heat represented 91 per cent of the March shipments.

Homebuilding Activity at New Peak

HOMEBUILDING ACTIVITY for the first third of 1950 reached new record proportions, according to preliminary estimates of the U. S. Labor Department's Bureau of Labor Statistics. In April alone, builders started 126,000 new permanent dwelling units, an increase of 16,000 (15 per cent) over March, and 37,700 (43 per cent) over April 1949.

So far in 1950, each month has been record-breaking in number of new dwelling units started. From January through April 1950, new housing units totaled almost 395,000, which surpasses 1949 activity for the same months by 53 per cent. Last year, the half-million mark was reached in July; this year it seems quite likely that a half a million new dwelling units will have been started by the end of May.

The acceleration in homebuilding activity was country wide, according to reports from local building-permit officials. When the first 4 months of 1949 and 1950 are compared, the most striking advances this year were reported for the West North Central, Middle Atlantic, East North Central, and West South Central States. In all of these areas, the number of new dwelling units authorized for construction was about double the volume for the January-April period in 1949.

Mobile Laboratory

PENNSYLVANIA'S NEW air pollution and industrial hygiene mobile laboratory, the only one of its type in the country, has just been placed in service by the state's Bureau of Industrial Hygiene.

Designed and supplied to the state by Mine Safety Appliances Co., Pittsburgh, the laboratory is equipped with more than 25 scientific devices for field sampling and quantitative and qualitative analyses of atmosphere in industrial communities and factories.

The mobile laboratory was turned over to the Pennsylvania Department of Health by George H. Deike, Sr., president of Mine Safety Appliances. It was accepted by Governor James H. Duff, Dr. Norris W. Vaux, secretary of the Department of Health and Dr. Joseph Shilen, director of the Industrial Hygiene Bureau.



New mobile laboratory is inspected by Dr. Norris W. Vaux, Dr. Joseph Shilen and George H. Deike, Sr., in the usual order.

Gov. Duff said the laboratory will play an important part in the state's effort to keep the atmosphere in industrial communities free from hazardous or annoying fumes, dusts and gases.

"We are going to do everything possible to prevent another smog tragedy like the one that claimed the lives of 22 persons in and around Donora in 1948," the governor declared.

Operation of the mobile laboratory will be under supervision of the state's new Air Pollution Division of the Industrial Hygiene Bureau.



News Round-Up

Engineering Building Dedicated

FORMAL DEDICATION CEREMONIES for the new Mechanical Engineering Building of the University of Illinois took place on May 12th and 13th. A distinguished group of speakers headed by Charles F. Kettering of General Motors Co. participated in the extensive program.

President Emeritus Arthur C. Willard was especially honored since he had contributed so much to the growth of the department as a professor and dean. One of the high spots of the two day ceremony was a complete surprise to him.

Doctor Willard was presiding at the dedicatory ceremonies when he told the audience there would be some announcements. Frank L. Meyer, chairman of the Research Advisory Committee of the National Warm Air Heating and Air Conditioning Association, led a group from the association on stage to present a plaque to the former president of the university. The plaque will hang in the new building and its inscription honors Doctor Willard for his outstanding contributions to the field of heating, ventilating, and air conditioning.

Chicago Golf Tournament

THE CHICAGO WARM AIR Golf Association is proud to announce the first of their Golf Outings for 1950. It is to be held on Thursday, June 29th, at beautiful Brookwood Country Club, located at Addison, Ill.

The association's manager, Mel Jackson, has planned a luncheon from 12:00 to 2:00, followed by 18 holes of golf. In the evening a full-course dinner will be served to the group, followed by the awarding of the prizes for the day.

All men affiliated with the warm air heating industry are cordially invited to join in the good fellowship that prevails at these golf tournaments. Bring your friends and make your reservations early so that caddies will be available. Drop a note to Mel Jackson at Grant Wilson, Inc., 141 W. Jackson Boulevard, Chicago 4, Ill., giving him the names of the men in your foursome.

National Apprenticeship Contest

THE SECOND ANNUAL National Sheet Metal Apprenticeship contest concluded with three winners and an honorable mention award. First prize of \$200.00 went to Aubrey J. Sutter, 2101 Palace Ave., Grand Rapids, Mich. Second prize of \$125.00 was won by C. G. Gackstetter, 119 13th Ave., So. St. Paul, Minn. Third prize of \$75.00 went to Edward Sander, 603 E. 12th St., Houston, Texas. A special honorable mention award was made to C. Elgie, 1323 Lakewood Ave., Vancouver.



The contest entries and the awards made.

B. C. Canada, because of the excellence of his entry and the closeness of the judging of the winners.

The winners received an engraved medal and a certificate of award. More than 700 sets of problems were distributed to committees and schools throughout the country and the high standard of entries received in the contest was exceptional.

New Gas Pipelines

FEDERAL POWER COMMISSION has recently authorized the construction of additional pipeline facilities for transmission of natural gas.

Trunkline Gas Supply Co. and Panhandle Eastern Pipe Line Co. has received permission to construct pipeline facilities to carry a combined total of about 300 million cu ft of additional natural gas per day to markets in the Midwest. The Trunkline project involves construction of a 740 mile Louisiana-to-Illinois main transmission line which will carry approximately 250 million cu ft daily, for delivery to Panhandle.

Transcontinental Gas Pipe Line Corp. of Houston, Tex., has been authorized to expand the capacity of its Texas-to-New York City natural gas pipeline, now under construction, from the presently authorized 340 million cu ft per day to a new total of 505 million cu ft daily. This will mean additional gas for the company's proposed markets in New York, New Jersey, Pennsylvania, Virginia, North Carolina, Georgia, Alabama, and Louisiana.

SMCNA Manual

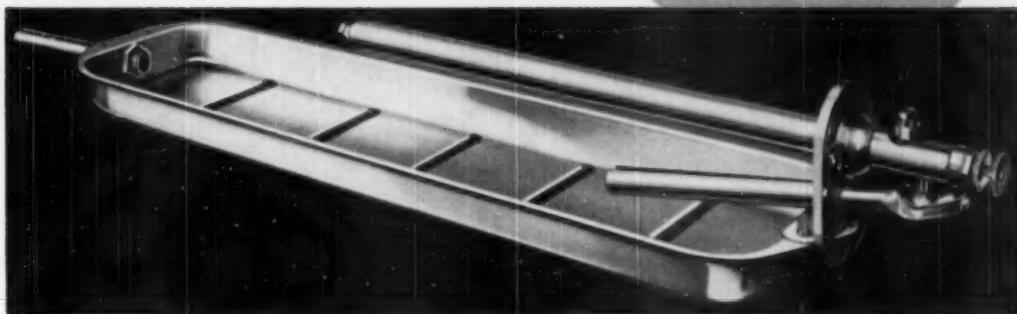
ANNOUNCEMENT HAS BEEN MADE by the Sheet Metal Contractors' National Association of the completion of Standard Practice in Sheet Metal Work, Manual No. 1. Dealing with gutters, conductors and conductor heads, this manual is to be distributed to the members of the association during the month of June.

(Please turn to page 154)

FASTER HEATING PAN

FASTER VAPORIZATION

*Unbeatable
Humidifying
Performance*



THERMO-DRIp *Automatic* **HUMIDIFIER**

• Here's the first and only humidifier on the market that has every feature wanted. It is precision-built at every point for superior quality—not a production line job. It will fit every type warm air furnace. It installs quickly and easily, thus reducing high labor costs.

DRIP FEED PRINCIPLE



Does not spray or run. Water drips into pan through funnelled orifice one drop at a time. The speed of flow is regulated—automatically—by heat. There is only the pan to heat, for no full pan of water ever gathers. The super-sensitive thermostat shuts off the water from pan as soon as heat lowers below vaporizing temperature.



FLEXIBLE INSTALLATION

12 pan sizes are available, making it possible for Thermo-Drip Humidifiers to be installed quickly and easily in every type furnace. Fans rest directly on combustion dome for most efficient operation. Can be suspended in plenum chamber if necessary.



ONE KIT TO PURCHASE

All accessories of a Thermo-Drip Humidifier are contained in one compact unit. They're easily assembled—economical to use—and quick to sell.

Compare these superior performance features

New, improved, air-tight valve
orifice has positive sealing action.

No electrolytic action.
No clogging.
Easy to clean and service.

Less parts—simplified design.
No stagnant pool of water left in pan—no scum.

Immediate vaporization.
Easy, flexible installation.



SUPER-SENSITIVE THERMOSTAT

Fool-proof thermostat gives immediate response to temperature change. Starts or stops the flow of water according to furnace temperature. This leaves only a thin film of water in pan. It eliminates the possibility of scum and any heat lag caused by this scum.

New, improved, air-tight valve
orifice has positive sealing action.

No electrolytic action.

No clogging.

Easy to clean and service.



EASY TO REGULATE

An easily-reached, outside screw adjuster permits fingertip control of water flow. Helps home owner quickly select amount of humidity. Lock nut assures hairline regulation.

New, improved, air-tight valve
orifice has positive sealing action.

No electrolytic action.

No clogging.

Easy to clean and service.

WRITE TODAY FOR FREE LITERATURE

Dept. A-60

**AUTOMATIC HUMIDIFIER
COMPANY**
CEDAR FALLS, IOWA



Getting Your Share of Stainless Sheet Work ?

Every Requirement Shipped Quickly from Ryerson Stocks

Now, during winter months when special stainless jobs may be taking the place of your regular work, rely on Ryerson to keep you supplied with profit-building stainless. On hand for quick shipment are huge stocks of time-tested Allegheny Stainless — every shape, type, gauge and finish.

Ryerson Service on Allegheny Stainless can often save time and money. Besides prompt shipment, we offer the assistance of experienced stainless specialists to help you on problems of selection, application or fabrication. And the same friendly cooperation is always yours, whether your order calls for pounds or tons.

At present the supply of carbon steel sheets is limited. But continue to call on us for your steel requirements. We'll make every effort to serve you promptly.

PRINCIPAL PRODUCTS

STAINLESS — Allegheny sheets, plates, bars, tubing, pipe, fittings, etc.

SHEETS — Hot and cold rolled, many types and coatings.

PLATES — Many types including Inland 4-way Safety Plate.

BARS — Carbon and alloy, hot rolled and cold finished.

STRUCTURALS — Channels, angles, beams, etc.

TUBING — Seamless and welded mechanical and boiler tubes.

RYERSON STEEL

JOSEPH T. RYERSON & SON, INC. PLANTS AT NEW YORK • BOSTON • PHILADELPHIA
CINCINNATI • CLEVELAND • DETROIT • PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE
ST. LOUIS • LOS ANGELES • SAN FRANCISCO

Machinery and Tools for Metal Fabrication

Your nearby Ryerson plant is a dependable source for every type of sheet metal shop equipment. All are guaranteed to give satisfaction. Let us help with your metal working problems. Prompt, personal service assured.



B-1 Bevelry shear, 14 ga. capacity.



Standard bending brake—also Universal.



10 ga. Pittsburgh Lockformer.



Rotary shear for irregular and circle cutting, also flanging.



Combination shear, punch and coper. And every other type of metal working equipment.

AMERICAN ARTISAN

Here We Go Again!

UNTIL RECENT MONTHS government and business indexes had been showing prospects of a reasonably stable economy and some evidence of eventually settling down to something that might be considered as a normal business pace during a cold war. But in recent months the pace has strengthened and what had been considered as a spurt has developed sufficient momentum to change the course of indexes from level or down to up. Business opinion now recognizes the current surge as inflation—creeping inflation because it crept in. Recent advances in raw materials and new wage and benefit increases in labor contracts spell price increases across the entire business front.

Generally, business reports are good and indicate more activity in concentrated industrial areas than in small towns. They are being written on rose-colored paper but they are not necessarily being read through rose-colored glasses. There's a question whether the present business pace is induced by healthy, ordinary, everyday buying by American consumers resulting from the natural expansion of the economy or deficit government spending. Take your pick. If it's the former, you can anticipate good thriving business without a hangover; if the latter, the effects of an intoxicating stimulant and the hangover.

Basic commodities like copper, lead, zinc, steel scrap, aluminum and rubber are already up. Scarcities of steel sheets are affecting many industries. Prospects for price reductions in the automotive industry have been dimmed by the continuous heavy demand for steel and by labor agreements which anticipate long-range high price levels. In many cases, present price levels can be maintained only by increased productivity. Repercussions of the advances will not be felt by consumers immediately. Consumers are resisting price increases and so the spiral will creep up—creeping inflation. Industry will feel this

upturn more acutely. It has become the most widespread advance in two years and there are no signs of easing. It may speed up as the prospect for industrial price increases leads to future ordering and inventory building.

Inflation is not a pretty picture. The bleakest aspect of the present surge is Federal spending. Economy drives have fizzled and military appropriations will edge upward. Tax collections are dropping, but may be sustained by inflationary expansion in the dollar volume of business. Meanwhile, government spending goes on at a rate of \$5 billion more than income with prospects for only increased budgetary deficits in the future.

Fresh impetus is given to the inflation picture as the President, upon returning from his western trip, renews his efforts to embark on an accelerated spending program. The prospective breath-taking stimulant of proposed spending and its implications on the nation's economy are self-evident by reviewing the proposals before Congress. The ultimate annual cost of these programs is estimated at \$25 billion, the major proposals being as follows:

Social Security Expansion	\$7,000,000,000
National Health Institute	6,000,000,000
Brannan Plan	6,000,000,000
Universal Military Training	3,000,000,000
Housing and Public Works	1,400,000,000
Aid to Education	500,000,000
Point Four Program	500,000,000

Source: Congressional Record

The impact of huge outlays cannot be overlooked by either small business or big business. If they represent the potential of our economy everything will be serene. If not, they will make the manipulated prosperity more reckless and the eventual depression more despairing.

The Editor

Newspaper Advertising — Key to Success

This contractor regards advertising as one of the regular costs of doing business. Each week the local newspaper carries his ad. The volume figures for the business indicate the correctness of his philosophy.

HOW can I be successful in the heating and sheet metal business?

No doubt all of you have asked yourself this question at some time or other. We all realize that very few people are successful because they just happen to be lucky. Plans have to be made and then followed as closely as possible to reach the top rung in the ladder of success.

When we lay plans for a successful heating and sheet metal business it is worth while to take into account the factors that have contributed to the success of other people. For this reason we are writing the history of A. L. Strong & Son of Springfield, Illinois, who has operated successfully from the inception of his business.

Promotion Plus Service

Mr. Strong's success has been based largely on an effective sales and advertising program, plus the always important requisite of giving good service once the order has been procured. He has also recognized the value of selecting one line of heating equipment and concentrating their sales and merchandising efforts on that one line.

Albert L. Strong entered the heating field in 1925, after which he worked for three different heating companies. He progressed very quickly from salesman to branch manager, due to an intense study of the



The Strong company cooperates with manufacturers in exhibits at trade shows like the one pictured here. Many leads are obtained at these events.

science of salesmanship. In 1930 he started his own company which he operated from his home, in Springfield.

Nine years later, in 1939, he took his son into the firm. Albert L. Strong Jr. had already obtained some valuable experience in the heating industry. Most of this experience had consisted of refractory installation, which along with his grounding in business fundamentals made him an asset at the very outset.

At the same time that A. L. Strong became A. L. Strong & Son, their place of business was changed from their home to a building where display space was available.

From the very beginning, advertising was recognized as the backbone of their merchandising campaign. Not only did Mr. Strong recognize that advertising was important, but he had a fundamental knowledge of successful application of this advertising. One of the primary reasons for the success of his advertising campaign is, and always has been, consistency. This fact is often forgotten by many of us. When using newspaper or radio advertising it is especially important to be consistent. It is very seldom that just a short newspaper or radio schedule will produce results.

Consistent Program

Mr. Strong contracted for a consistent newspaper advertising schedule. He placed an ad in the phone book and the balance of his advertising budget was spent in civic ventures, such as home shows, etc. It is well to note that today approximately this same advertising plan is employed in the merchandising program.

During the first few years of the father and son venture, all of the selling was done by Mr. Strong Sr. The son was in charge of heating, roofing, and siding installations. During this time one or two men were usually employed to help with installations.

During the next few years the son worked into the sales end of the business and more help was employed to take care of installations.

Later four salesmen were added to sell the company's products and services. The city of Springfield was divided into four parts and each salesman was given a territory to cover. These salesmen were paid approximately 10 per cent commission and were given a drawing account against commissions earned.

By this time the consistent newspaper schedule was beginning to pay dividends. Most of the advertisements included a coupon. After a few years of suc-

cessful operation the coupons began to come in at a fairly steady rate. These coupons were turned over to the salesmen who then followed them up. Also many prospects were turned up through canvassing that was done by the salesmen themselves.

A sales manual was supplied to these salesmen that consisted mostly of photographs and testimonials. These photographs show before and after views of roofing jobs as well as before and after views of heating installations. It was soon found that these photographs, plus the testimonials, enabled the salesmen to do a much more effective sales job.

Average Budget

For the past three years A. L. Strong & Son has spent an average of \$7000 per year for advertising. This covers advertising all phases of the business, i.e. heating, roofing, and siding. The majority of this is allotted for newspaper advertising. They have an ad in the paper at least once a week. This ad is usually placed in the Monday paper. At times other ads are added during the week, the once a week placement is considered a must. This ad is usually two columns by 9 in. and the majority of the time it advertises all phases of the business. A coupon is included in these advertisements. The prospect can clip the coupon and return it to the company, requesting information concerning heating, siding or other services.

You may well ask how it was determined how much money would be spent for advertising. They did not select any certain percentage of sales, but used what is commonly known as the task method of determining their advertising budget. The term task comes from Task Force which was the name assigned to certain forces during the last war that were assigned to perform specific jobs or obtain specific objectives. When using the task method of calculating the advertising budget the first step is to determine the objective to be accomplished and then set aside the amount of advertising funds necessary to reach the goal.

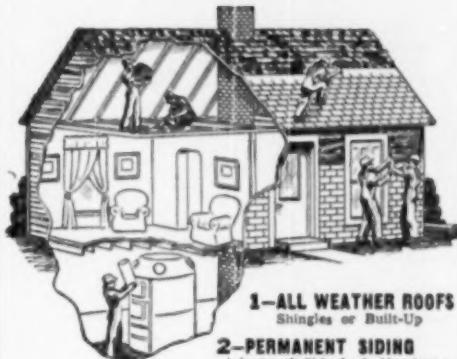
The major objective was to make the firm fairly well known and secure enough leads to keep the salesmen busy most of the time.

Source of Leads

Total annual sales volume has amounted to \$170,000 and \$175,000 during the last three years. It is well to note that over 80 per cent of the leads for these sales have come from newspaper advertising coupons or from phone calls. Some of the telephone calls are due to newspaper advertising while others originate from word of mouth advertising. This word of mouth advertising is a result of excellent installations and service given previous customers.

Newspaper advertising during the summer usually produced from 3 to 5 inquiries per ad placed. However, Mr. Strong definitely feels that if it were not for the year round schedule of advertising, his ads during the heating season would not be so productive. In other words, his year round advertising keeps his name and services in front of the public. When the public is ready to buy they quite naturally turn to A. L. Strong & Son. Indications are that approximately one out of every three inquiries results in a sale.

4 Reasons Why STRONG'S MAKE Four Walls "Home"



1-ALL WEATHER ROOFS
Shingles or Built-Up

2-PERMANENT SIDING
Asbestos • Shingle • Aluminum

3-ROCK WOOL INSULATION
Fireproof • Vermin Proof • Permanent

4-WEIR WARM AIR FURNACES
For Gas • Oil • Coal • Gravity or Air Conditioning

LOOK HOMeward WITH STRONG'S. Hundreds of home owners are taking advantage of the real help STRONG'S can give you. STRONG'S handle the complete job, materials, skilled mechanics and financing.

WE DO WORK ANYWHERE
Do It Now—Phone or Mail Coupon Today
JUST TEAR OFF AND MAIL

A. L. STRONG & SON

18th & Washington Sts. Dial 3-3628

Without obligation on my part, please have your representative call and give me full particulars about:

<input type="checkbox"/> WEIR FURNACES	<input type="checkbox"/> ROOFING
<input type="checkbox"/> GAS OR OIL BURNER	<input type="checkbox"/> ASBESTOS SIDING
<input type="checkbox"/> BLOWER	<input type="checkbox"/> SHINGLE SIDING
<input type="checkbox"/> FURNACE REPAIRS	<input type="checkbox"/> ALUMINUM SIDING
<input type="checkbox"/> ROCK WOOL INSULATION	<input type="checkbox"/> Explain Payment Plan

NAME

STREET

TOWN

This is the advertisement which appears regularly in the Springfield papers every Monday.

Since the advent of FHA financing, the firm has taken as full advantage of it as possible and finds that it makes the selling job considerably easier.

(Please turn to page 156)

New Census Figures—Valuable Sales Tool For The Heating Industry

DAVID MARKSTEIN
New Orleans, La.

Not everyone is aware of the importance of the census figures in planning a sales campaign. Almost every phase of economic life is reported to give background for any sales effort.

EVERY *Indoor Comfort* dealer in the United States will soon be presented, absolutely free, with a merchandising tool of great potential value. Not all of them, however, will recognize it as such. But those who put this tool to work helping them make more sales will do very well during the next several months and years.

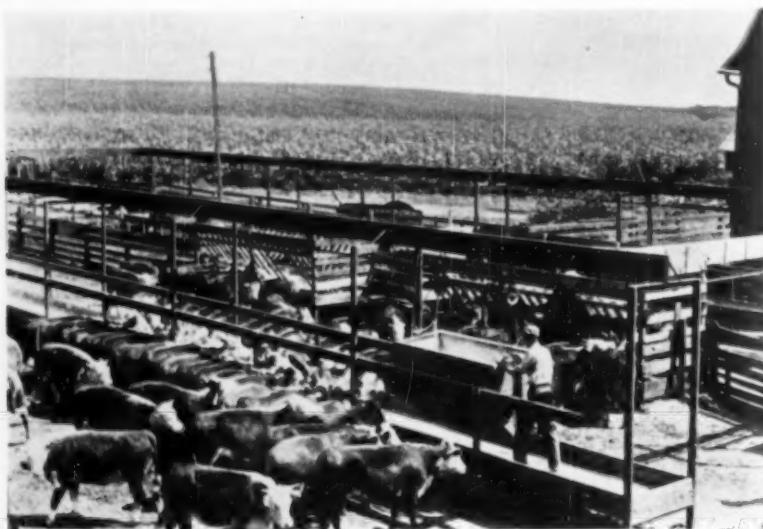
The tool is a number of seemingly dry statistics, which are being gathered and will shortly be processed, refined, and published by the Bureau of the Census. The people who went from door to door getting the facts about every person in the land drew their pay from Uncle Sam. But they, and the office employees who are processing this information, are doing a vitally important job for the *Indoor Comfort* industry and for each individual dealer.

Many contractors miss the significance of census data as a guide to local planning. "Sure," say a few, "these facts are good for the manufacturers. What use can I make of a lot of national figures? I'm selling in one city, not a nation."

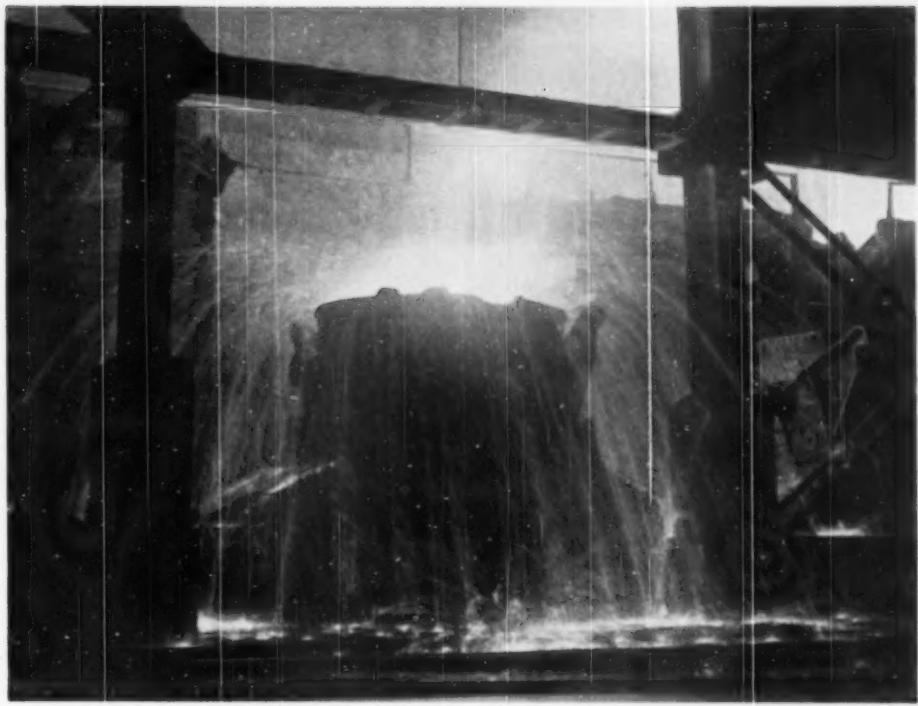
Local Figures

But census data is not compiled only at the national level. The facts about incomes, numbers in families, kinds of homes, kinds of heating and fuel in use, etc. are broken down by cities, counties, townships, even villages and some unincorporated districts.

They can be invaluable as planning guides. For example, it may turn out that in the town of Jonesville, where Fred Jones is a heating and air conditioning contractor, the statistics will show that one home in every

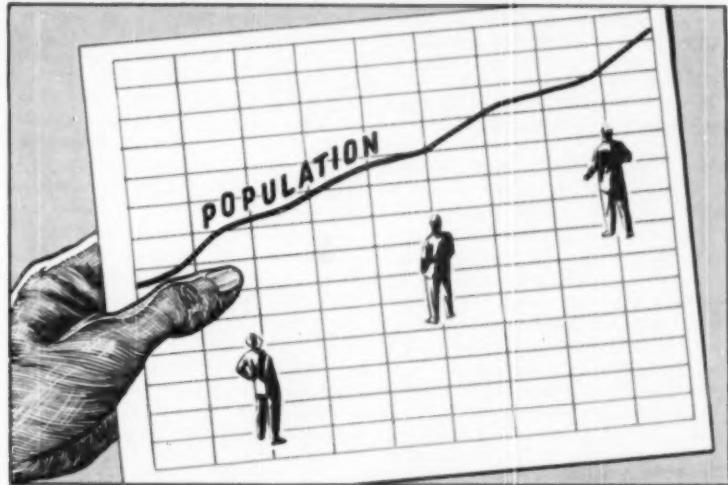


Prosperity of the American farmer is intimately connected with all other groups. A drop in farm income produces a corresponding drop in other sectors of the economy.



Steel is the true backbone of America. As long as the steel industry continues to boom the overall economy will prosper.

Rising population means a rising demand for the products of industry.



three is being built without a basement. Looking at this, Jones will be interested, because he will know that he had not sold enough warm air furnaces designed for utility room placement to fit one home in a hundred—much less one in every three.

Looking back at his own figures and at the sales promotion stunts his company had used, Fred Jones finds that, sure enough, he had been pushing basement installations with vigor, and making little more than

perfunctory effort to sell heating for basementless houses.

Knowing the potential market he can change his selling emphasis and get a share of the potential market.

That's an extreme example, to be sure. But it demonstrates how census data on the local level can be of vast aid to every *Indoor Comfort* dealer. The 1950 census will break down a number of interesting statis-



New construction records are being set each month in 1950. The demand for heating equipment will continue strong with this building trend.

ties for the industry. The dealer can find out how many families there are in his own town, how many persons in each family, types of dwellings and ownership. Even the particular data applicable to his own industry will come from questions the enumerators are asking in regard to types of heating and fuels used to heat homes.

First facts will be published before the year is half over. These will give only the population totals. Later, as the months go on, the data on markets will be released. The Bureau of the Census intends to put it all out as quickly as the answers can be broken down into accurate marketing statistics.

Some Trends Observed

Already, the pattern of what these statistics will show can be discerned. Spot checks in the years between 1940 and 1950 have shown what is happening in key areas. Judging by these and other vital facts, most experts expect to see these facts emerge:

There are more people. The figures will probably show about 152 million in the U. S. That is 22 million more than there were in 1940. Back in the nineteenth century, waves of immigration kept the population growing. Today, with fewer infant deaths and with the old people now living longer, it is better national health and longevity that boosted U. S. population. Births totaled 32 million in the past decade. Only about 10 million died during the same period.

Population has increased in the cities. There has been a long-time trend away from the farm ever since the turn of the century. The war, by drafting young men into the service, and by taking young and old, male and female, into war factories, speeded up this trend.

In 1940, there were 30½ million people living and working on farms. The new census will probably show only about 28½ million farm population.

Still, selling emphasis on farm installations will go

over big, for the fewer farms are more prosperous, and they are more modern.

(However, farm income is dropping. Not alarmingly, but dropping nevertheless. 1949 wasn't as good for the farmer as 1948. And Department of Agriculture experts expect to see farm income drop another 10 per cent in 1950. That will still leave the farmer with money to spend for *Indoor Comfort*, but he will be choosier, harder to sell, want to know that he is buying the most value for his money.)

Some cities have benefited spectacularly from the war migrations. On the East Coast, Newport News and Norfolk have about 40 per cent more people than they had before the global fracas began. San Francisco and Oakland, the gateways to the Pacific, have seen population increases that the census will probably show to be almost equal to that of Norfolk-Newport News. Los Angeles has grown by great leaps in the past decade. Seattle, Washington, San Antonio, and Portland (Oregon) are other cities where population has grown out of all proportion to the national increase.

There are more young families. The decade saw about 3½ million men and women saying "I do." Unfortunately for them and for the nation as well, one million of these marriages ended in divorce. But that leaves a good-sized increase in the number of families.

Families have more children. There has been an increase of about 23 per cent in the average number of children in families of child-bearing age.

People make more money. Back in 1940, the per capita income was \$530. The 1950 census will show it to be around \$1300. True, the dollar buys less. But the dollar's value has not been so reduced that the two-and-a-half-times increase in income does not mean that people have a lot more money. The real increase in purchasing power—ability to buy *Indoor Comfort* and other things—is around 40 per cent.

(Please turn to page 158)

Six Brothers Make Heating History In Southern California

SAM JAFFE

Los Angeles, Calif.

Here is an unusual story of an unusual family. The six Ashburn brothers not only got into the heating business themselves but brought their father with them.

LOS ANGELES, metropolis of the Pacific Southwest, is famous for sunshine, oranges, motion pictures, oil, tourists and smog. In the heating business it enjoys another distinction. It boasts the only six brother combination in America which has devoted a lifetime to the warm air heating and ventilating business—the Ashburns, Jess, George, John, Garnett, Glenn and Bob.

This sextet is more than a curiosity of the industry. Their story might be called a history of the growth and development of the multi-million dollar heating business in California.



Here is the still active head of the Ashburn clan,
Edgar S. Ashburn.

The Ashburn family had its early roots in the soil of Kansas, where father Edgar S. Ashburn maintained a farm. At the age of 83 he still takes an active interest in the business operations of his sons.

In 1912 George Ashburn, second oldest brother, decided to move to California. He went from the Kansas farm to Los Angeles and settled down to enjoy



Glenn Ashburn demonstrates sales features of a heater in the showroom.



George R. Ashburn seen checking a set of blueprints for a heating job.



Jess Ashburn checks a furnace on display floor.



John S. Ashburn lays out a heating installation.

the sunshine. Looking for employment he secured a job with the U. S. Stove Repair Co. Choice of this business stemmed from the fact that he had worked with a furnace repair company in Kansas City. Had George gone to work in some other line of business there might be no story to tell here. He persuaded his five brothers to join him in the heating business.

Early Heating Plants

Warm air heating in 1912 was a far cry from today's modern, scientific methods. Clumsy basement-gravity furnaces which burned coal, wood, and some manufactured gas were the principal type of equipment used in Southern California. And who ever heard of a heating code in those days?

After the end of World War I, George Ashburn went

to work as general superintendent for Braasch Furnace Co., one of the pioneer heating firms in California. Modern heating had not emerged from the embryonic stage in the early twenties. Manufacturers of heating equipment did their own installation in a catch as catch can manner. The evolution of the exclusive heating dealer was still in the future.

In 1919, pressed metal radiators and gas steam radiators were the vogue. A pygmy type of floor furnace was just coming on the market. Most heating appliances were unvented. When a vent was used it was a rectangular product made of concrete and sand, butted end to end without bells. The swing to gas fired gravity heat did not begin until 1924.

Other Brothers Move

In 1921 the rest of the Ashburns began to move to California. By 1923 all had transferred their residence except the eldest brother Jess, who remained on the farm. John and Garnett went to work as journeymen installers for the firm George was with.

The Ashburn family's entry into the heating business continued in 1928. Glenn graduated from high school and joined the same company as bookkeeper and office manager. Just a few months before, the first heating code had gone into effect in Los Angeles. Glenn was destined to play an important role in re-writing this code, rated as one of the outstanding codes in the country.

By 1932 the Ashburns had become the operational backbone of the firm and remained when a new management took over. Rapid expansion made larger quarters necessary. In 1933 the firm moved to West Hollywood. This began a period in which the brothers started clicking as a team. Each became a specialist in a particular phase of the business. Glenn was general assistant to the president. George supervised installa-



Bob Ashburn shears pipe stock in the sheet metal shop.

Garnett Ashburn crimps a pipe collar.



tions. John headed the service department. Garnett and Bob, who arrived in 1935, were in charge of the manufacturing shop.

In 1937 the factory outgrew its quarters and manufacturing operations were moved to nearby Palms. Sales and service of the products were turned over to the new Ashburn Brothers Heating Co. which remained at the West Hollywood location. Then in 1939 the oldest brother, Jess, finally left the farm and came west to join his brothers in business.

Until World War II curtailed normal business, the Ashburn company specialized in the installation of forced air and gravity heating jobs. A small amount of work was done with floor furnaces and consoles.

Like many other metal working firms, the Ashburns went into war work in 1942. They produced thousands of flashings, fittings, and pipe for various army camps. Metal boxes and containers for life rafts, and huge funnels and windscoops for victory ships were fabricated.

Postwar Revival

Having maintained their former contacts with sources of supply during the war, the Ashburns were in a position to get back into the heating business in 1944, when the restrictions on natural gas were lifted and most priorities came off. They secured sufficient equipment for their own jobs and were able to help many fellow dealers. In a short time they were selling two or three times the amount of equipment they consumed themselves. The opportunity for launching a wholesale supply business had arrived.

Glenn Ashburn, the leader in matters of business management and policy, thought such a supply function could serve a new and unique purpose. It would be a one stop source for all heating supplies. A heating contractor could obtain furnaces and other material

including fittings, vent pipe, registers and other items. Such an operation had not been attempted in that locality.

The Ashburn Supply Co. came into existence in May 1946. A large site was selected in the new industrial center of Culver City. A modern 25,000 sq ft warehouse, sheet metal fabricating plant and office building was erected.

Three of the brothers, Glenn, Jess, and Bob, moved to Culver City to launch the new operation. The others remained in West Hollywood to carry on the contracting business.

Brother Against Brother

Problems soon arose. Ashburn Bros. Heating Co. competes with many dealers who are good customers of Ashburn Supply Co. A very simple solution was evolved. The two businesses are operated entirely independently. The contracting firm buys and sells any products necessary to meet demand, regardless of the identity of the supplier.

Growth of the Ashburn supply operation in the past four years has justified Glenn Ashburn's faith in the one stop theory. Part of this growth can be attributed



Exterior view of the Ashburn wholesale company.

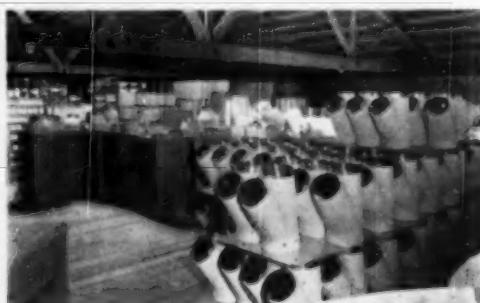
Fabricating furnace pipe in the shop of the Ashburn Supply Co.



Men shown below are manufacturing elbows in the shop.



Insulation is being cut out for covering the pipe produced in the manufacturing operation.



General view of the well stocked, efficiently kept warehouse of the supply company.

to a sound merchandising policy and the aggressive sales program of sales manager Gordon H. Oury. He took the view that the heating dealer has been a sadly neglected individual in the post-war period. As a result, the wholesaler who expects to do business must be prepared to offer his customers many needed services. A program was initiated that is paying dividends in increased sales. A closer relationship has been established between dealer and wholesaler.

One of the services aims at assisting the dealer to make a better profit on his installation. A scientific estimating analysis is available.

"Many dealers readily admit they are not good businessmen or estimators, and welcome our assistance along this line," says Mr. Oury.

The Ashburn program has 14 points in all. One which wins friends in the field service of Bob Ashburn. He consults with dealers who operate their own sheet metal shops, helping them with production problems. The display program allows 10 per cent from regular trade prices on items displayed for six months. Complete catalogs are prepared for the dealer. A monthly house organ titled *The Hot Stove Reporter* functions as a local trade journal of the industry.

Engineering assistance is offered dealers, architects, and builders. Harleigh Kyson, a trained engineer, devotes his full time to this service.

The contributions of the Ashburn's to the promotion of the industry have been quite important. In 1940, at the invitation of Glenn Ashburn, approximately 40 manufacturers and dealers met to form the Institute of Gas Heating Industries. This has grown to be an outstanding trade association in the field. It is especially noted for its fine educational program. Glenn was the IGHI's first secretary and fourth president. George Ashburn has also been very active in the Institute. He has headed the educational and sales training committee.

For the past two and a half years Glenn has been chairman of the Heating Code Advisory Committee of Los Angeles. This is an industry group working with city officials on a major rewriting of the city's heating code. It is now nearly complete. A member of the National Heating Wholesalers Association since its inception, Glenn was elected national secretary at its last convention.

Pensions—A Management Problem

PART I

WILLIAM J. CASEY

Research Institute of America, Inc.

LAST year was the first round in the fight for pensions. For all practical purposes the unions won it. 1950 is certain to be the second round. Any company which hasn't run smack into the widespread drive for retirement benefits must anticipate it this year. No company can hold itself aloof because it considers itself too small, because it cannot afford pensions, or because its workforce is not unionized.

In nonunionized companies many personnel and competitive factors will increasingly require management to face the pension issue squarely. Other employers will find themselves confronted with the issue in other ways. In Toledo, for example, the United Automobile Workers (CIO) are pushing their proposal for area pensions. In that city, UAW is driving hard, as the representative of workers in over 125 companies, to set up retirement benefits on an area-wide basis.

There exists considerable doubt and confusion over the meaning and the cost of pension agreements negotiated last year in the basic industries such as steel and automobiles. Organized labor's drive for pensions must be accepted as an acknowledged success, however. Management's responsibility—in whole or in part—for the economic security of workers in old age has been nailed down.

Pressure for pensions will be felt by all companies, unionized, or not, in all industries and in all sections of the country. Intensified and expanded pressure will manifest itself in at least two directions:

To force pension plans on more companies.

To compel companies with pensions plans to increase benefits. For companies that haven't as yet faced the pension problem there are a good many lessons to be learned from the experiences of the past six or eight months. Many of the publicized pension settlements reveal the difficulties that exist in negotiating or establishing pension programs under pressure.

Pension prices are nothing like automobiles, clothes, or shoe prices. The tag on a manufactured article represents the sum of production charges already incurred, plus the manufacturer's hoped-for override. But when you're setting up the cost of a pension plan, you're trying to guess what you're going to spend ten, thirty, possibly even fifty years from now. You have to make a forecast on a great many things:

Death rate of your employees, before and after retirement.

Probable interest yield on sound investments for the next fifty years.

Probable rise in wage levels in years to come, and the whole problem of inflation.

Long-term earnings prospects in your business.

Your probable record in number of employees to be hired, average age, quit rate, and even whether you will be taking on more men or women.

This sounds almost like buying a pig in a poke. But all these items have to be taken into account unless you like to spend money with your eyes blindfolded.

Approaching the Problem

Because of these seeming imponderables, it's wise management policy to become familiar with the many questions involved—even where a company feels that a pension issue doesn't exist for it, or is extremely remote. No company can intelligently decide for or against a pension program unless it has first explored the pros and cons of the many possibilities. The toughest, yet the fundamental, determination is whether a company can undertake a pension plan at all, and what kind of a commitment it is prepared to make.

Such perplexing questions as these must be answered: Should a company commit itself to pay a definite pension or merely to make a specific contribution to a fund? Should the amount of the pension depend on what the fund will pay, with a liability limited to the fund and not attached to the company? What kind of benefits?

What Will It Cost?

This is the question most businessmen ask first about pensions. It can only be answered by thorough study of the nature and size of benefits, who qualifies under the plan, what the turnover is likely to be, industry mortality experience, cost position of the specific company and investment yield forecasts. Even with such information, an estimate is all that is possible. The talk about cost at recent collective bargaining negotiations has been overly optimistic according to a good many impartial experts. Many actuaries feel that the eventual cost of any of the agreements (particularly in steel) will take twice the funds currently being put

aside. The amount actually paid out in retirement benefits will depend on many unknowns but primarily, how long the covered employees will live. Normally, pension benefits will vary with length of service and compensation. However, the cost estimate can be quite definite and reliable where pensions are funded by insurance or where the workforce is large enough to make a reasonably conservative actuarial appraisal.

There are two separate elements to consider: a) The cost of providing benefits earned by service performed after installation of the pension plan; and b) the cost of benefits for service before the plan starts. This gross cost will loom large—especially as an annual charge—if employees tend to be old. It will be higher still if many people have worked for the company a long time. In such cases, it is often necessary to reduce benefits for past service.

Reducing Cost

The most dramatic reduction in cost can be achieved by raising the retirement age or reducing the scale of benefits. Once those factors are established the following possibilities may be explored:

1. *Contributions by employees.* These are required in many of the current pension systems. Despite union demands for the employer to contribute all, many pension authorities believe that employees can be persuaded to contribute to a program designed so that it's saleable as an investment to employees. In this connection, let's not overlook the fact that at Inland Steel, where the employees had a choice, a substantial majority enrolled in the plan which required them to contribute.
2. *Restricting eligibility.* Some companies cover only employees who have reached a certain age (generally 25 or 30) and who have had more than five years of service. Then again some plans are restricted to office employees or those who are paid salaries.
3. *Taxes.* An employer's contribution to a pension plan is deducted from federal income tax, if approved by the Bureau of Internal Revenue.
4. *Turnover.* Over a period of years, a fund builds up from quits, layoffs, mortality, and employees who leave without having acquired any vested right in the contributions made on their behalf. This is either discounted or money becomes available to fund pensions for other employees.
5. *Cost of superannuation.* In one way or another, many companies carry employees who have lost steam. Some firms even go further and pay out funds on an informal basis to help retired employees. Where a pension plan makes it possible to eliminate these costs, the saving can be charged against the gross cost of pensions.

How Much Pension?

In deciding on a scale of pension benefits, there are two main factors: 1) Adequate retirement income for employees, and 2) what the company can afford. A pension, plus social security and any other income, should permit an employee to maintain a retirement standard of living somewhat commensurate with his working income and grade of employment. Obviously, this amount will vary by industry, locality and type of personnel. A pension should be high enough so that no backwash of personnel problems is created when an employee leaves a company.

Admittedly, this is a highly salutary goal. Yet at the same time, benefits must be geared to a conservative appraisal of the company's long-term economic prospects. It's not very sound to enter into a pension program with the mental reservation that the plan can be ended or the scale of benefits reduced in case of economic uncertainty or actual business let-down. Such steps may involve complications which will do more harm than the good achieved by starting the program in the first place. Therefore it just seems like good sense to gear any scale of benefits to an annual charge which seems well within the company's long-term capacity to carry.

Generally speaking, benefits are likely to be adequate if, including social security, they run from 30 to 50 per cent of the compensation received for full-time work before retirement. If a pension plan isn't able to pay as much as \$50 a month in current benefits at age 65 (not including social security) to lower rated employees with average length of service, it's probably desirable to consider raising the retirement age. \$50 a month at 68 probably makes more sense than an inadequate amount at age 65.

Setting Benefits

The pension might very well reflect two things: the earnings of the employee and his contribution to the company, that is, the length of his service and its value. To achieve this, a scale of benefits is determined in one of the following ways:

1. The employer (and employee, if the plan is contributory) contributes a stated percentage of pay each year. The pension then will be whatever amount the funds so accumulated will purchase at retirement.
2. During each year of service a participant earns an annual retirement benefit of 1 per cent or more of his average or final earnings.
3. If an employee completes a stipulated period of service, his pension would be a specified percentage of his average or final pay.
4. Set a flat amount for each year of service regardless of salary, provided a minimum service period is completed.

Social Security

Where the amount of a pension is set either in terms of service or earnings, or by a flat amount, it may be integrated with social security benefits. Some companies provide that these benefits are to be deducted from the retirement amount used to fix the pension to

(Please turn to page 160)



Arnold Kruckmanns
Washington Letter

Government By Smear

FROM St. John's, Newfoundland, a year ago this correspondent received from a reader of these Letters an unsigned communication:

"Arnold:

"Did you ever see a seagull that has drifted into an oilslick? It is becalmed and soon to die because it has lost its power of movement and cannot fend for itself.

"Well, that is the condition of your America today. The only difference is that America is swamped in Red Oil, poured out by fellow travellers who have wormed themselves into the right places, where they can effectively smother all attempts to smoke them out.

"In other words, your State Department, is sewed up from the inside by fellow travellers, and it is no use complaining to them.

"America is in a trance and the Communists are weaving a spider web of deceit and propaganda around its legislatures and press. It's a much cheaper way of winning a war than by going to battle. They are hamstringing you on the home front, and the people generally do not even realize it. When true Americans try to present a case for America, and perhaps show up just what Russia is attempting to do today, they are effectively sidetracked and some slick diversions are prepared. All draw attention away from the Orient where millions, possibly a billion, cannon fodder are being added to the Russian war potential.

"Don't you realize that whatever is being done to cause uneasiness in business circles, there-

by helping to curb plant investment, and new ventures by big business (which are vitally needed if America is to expand her manufacturing capacity and create new employment), is red inspired? Don't you realize the lack of all this will make your country an easy prey for the Communists during the cold war, and also curb America's war-making capacity in the event Joe Stalin decides that America is afraid of him, that he has her sewed up from the inside anyway, and that the time has come to turn the cold war into a hot one?"

This anonymous communication was regarded chiefly as a curiosity in the daily grit of mail when it came a year ago. But recently it came strongly into mind when Senator McCarthy was made the target for such an amazing smear campaign by the followers of the Administration. As revealed in this curious letter from Newfoundland, the State Department has been suspect longer than the recent period in which the present controversy has raged. As a matter of fact, the predilection of the State Department, and other agencies, during the war itself, for the Russians, was one of the phases of international relations, that more than puzzled some correspondents and others in Washington. In the Treasury, under the regime of Morgenthau, there was an agency charged with expediting the transmission of supplies to the various Allies. It is no secret that at the instigation of some source, which was assumed to be the State Department, the expeditors were in-

structed to give preference to the supplies that went to Russia. The orders were said to have come through Morgenthau's nephew who was in charge of that department in the Treasury which included the expediting. In one instance, the Russians urgently needed new equipment to replace the works smashed at the Dnieper Dam; a complete installation could not be obtained quickly enough from General Electric to satisfy everybody concerned; nor could it be obtained from other industrial sources. In the emergency what was required was taken bodily and totally from the Tennessee Valley. It was shipped at the time 2500 tons of top-grade butter were sent to Russia, presumably to be used as food. It was during the period when we virtually had no butter to use ourselves. When American engineers went to Russia they found the butter had been utilized by the Russians to lubricate machinery. Butter is a poor lubricant. The equipment sent to Dnieper was ruined. It was necessary to duplicate the whole shipment and to reinstall the machinery.

Infiltration

Correspondents who have been in Washington the past twenty years have often been told by their friends in the State Department about the infiltration of radical ideas via the younger members of the agencies, who are now more or less in the saddle. There is no doubt most of these eager beavers are not affiliated with any Communist organization; but it makes very little difference what their actual affiliations



Washington Letter

may be so long as their ardent ideas effect similar results. It is remarkable that most of the personnel, even in important posts, is often drawn directly from the schools. They are essentially youthful, inexperienced, and overdone academically. Many of them have that monumental certitude and complacency, and that sort of arrogant superiority, we often find in young people from the so-called higher institutions of learning, who are not quite dry behind the ears. Great numbers of them have come into Government agencies as followers of those radicals in high posts who came into the Government from great universities and similar bodies.

The Smear at Work

With this background, you may be able better to understand the violence of the opposition to Senator McCarthy of Wisconsin. This correspondent knows McCarthy but slightly. But your correspondent is convinced that McCarthy is sincere. He is very intelligent, has a nimble and brilliant mind, is very capable in every sense of the word, and has abundant drive and energy. Whether deliberately, with calculation, or whether it is an accident, he has staked his entire future on the campaign he is now waging. Your correspondent recently travelled 2,000 miles from Washington to the northeastern-most tip of Maine. In those purleus immediately beyond the intimate effect of the nation's capital, he found the people had a sympathy for what McCarthy was doing. Apparently, despite the smear campaign, they felt he had solid substance on his side.

The manner in which the things he has said, and the things he has done, have been distorted and mis-

represented by his opponents in Washington is one of the most startling incidents in the life of the capital in the memory of this correspondent. McCarthy made two notable addresses on the floor of the Senate. The first was made on February 20, 1950. You may find it in the Congressional Record beginning on Page 2043 and ending on Page 2071. In this address, McCarthy, always careful to make clear that he had encountered extraordinary difficulty in getting any facts, gave chapter and verse for the statements he made. He drove home the idea that what he was after was a means of getting at the facts that were then hidden, and protected by higher authority. He sought an absolutely impartial investigation. The way in which he was interrupted, and heckled, and in which his statements were twisted and distorted, by opposition Senators, is a classic. The incident, in many ways, is one of the most disgraceful exhibitions that has happened in the Senate. It sheds no credit on Senator McMahon of Connecticut, Senator Lucas of Illinois, and their lieutenants. The dominant Washington newspapers, Republican or Democrat, strangely followed the Administration lead. McCarthy was made to appear a careless liar. It is no secret that some of our large newspapers in the capital are what is called liberal. Nor is it a secret that there is a dominance among the channels through which the news flows to the newspapers which is politely called Liberal. How far these influences have conveyed the same misinformation over the wires to other parts of the United States it is difficult to determine.

McCarthy made another speech, similarly interesting, in which he was similarly mistreated by his

fellow Senators, and by the local press, on March 30. You may find it in the Congressional Record starting on Page 4434 and ending on Page 4473. He also took part in an illuminating discussion launched by Senator Knowland of California on April 5. This discussion, in support of Senator McCarthy's anti-communist campaign, may be found in the Congressional Record of April 5, between pages 4929 and 4960. In it Senator Knowland presented a number of documents which are amazing. They offer the contrast of the deadly parallel. They include a paper by Lattimore. Careful perusal of the documents Senator Knowland placed in the Record startlingly reveal, in great detail, the policy of the various governments which have influenced what has happened in Asia. These documents should be required reading by anyone who wishes to understand the purposes of our Government and what has happened in China and elsewhere.

New Tension

It is appropriate to remark here that Washington has developed a great war tension. This correspondent attended a luncheon of the Committee for Economic Development at which W. Stuart Symington made his first appearance as head of the National Security Resources Board. In the course of his talk he said we are in an era in which formal declarations of war are things of the past. "Today, it would seem as if one of the contestants had two boxing gloves, the other a glove on one hand and an automatic in the other. Today we are already in a great world struggle. We are being warred against, not only with the new weapons of

(Please turn to page 164)



RESIDENTIAL
AIR CONDITIONING
Section

INDOOR COMFORT — IN ALL SEASONS
FOR HOMES AND SMALL BUSINESSES

The Invisible Staff . . .



behind every Waterbury dealer

If you're a Waterbury dealer, you've probably noticed it many times—in many different ways . . . the important aspects of your business that are cared for automatically.

The advertising—keeping the name Waterbury before the public, your customers . . . the merchandising tools—display materials, sales ideas, ad mats—all designed to find your prospects.

. . . the matter of distribution rights—making sure that you and you alone represent Waterbury in your locality—that you are the only Waterbury dealer in a clearly defined territory.

. . . the engineering skill—constantly at work—making your Waterburys the finest equipment in warm air heating, anywhere!

All this—and more—stands behind you with every Waterbury you install. All this thinking—planning—doing . . . it's going on day after day . . . making your future with Waterbury a secure and growing one. It's your invisible staff . . . working for you.

Waterbury

THE WATERMAN WATERBURY CO. 1122 JACKSON STREET, M. E. MINNEAPOLIS 13, MINNE



Warm Air Baseboard Heating Supplies Heat at Source of Heat Loss

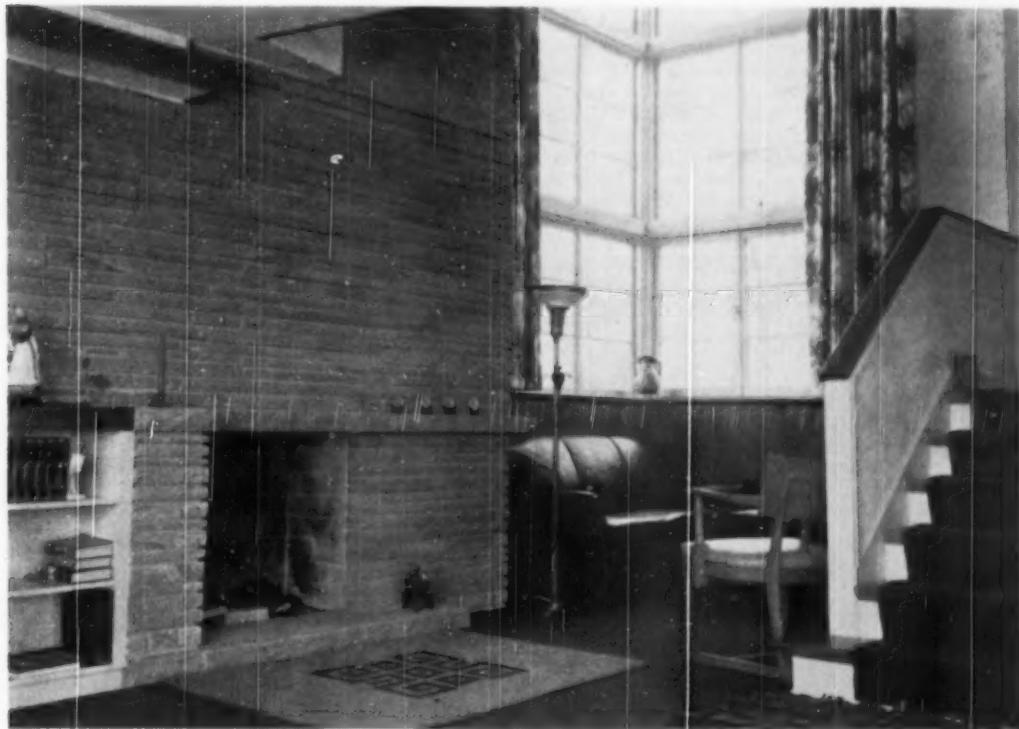
JOHN E. PETERSON, Editor

A method of heating that has become practical with the development of a device for releasing heat at the point where it is needed.

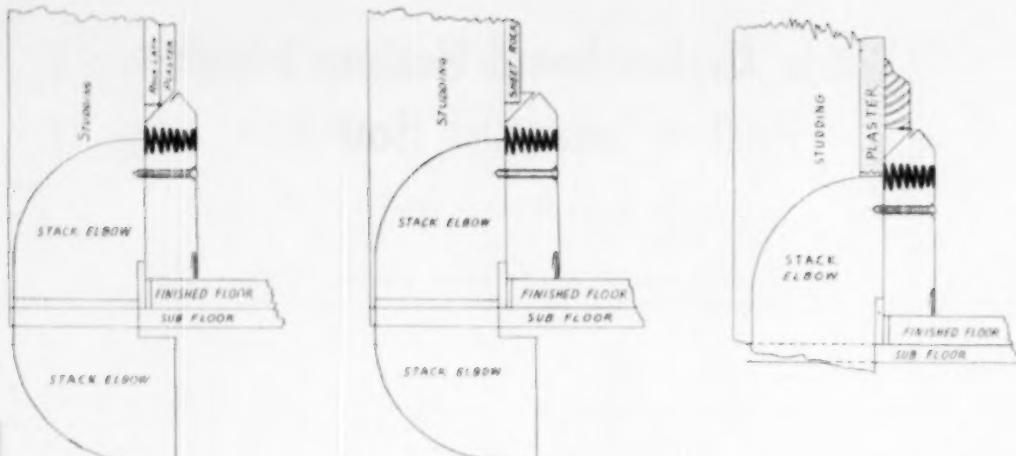
AN UNCOMMON method of air distribution for winter air conditioning systems has been made practical by the invention of a slotted, hollow, metal baseboard which takes the place of the common, wood baseboard. The new baseboard, installed along the outside walls of a room, recognizes the long-sought objective of supplying heat at the source of heat loss. It provides a means of releasing air at the base of outside walls, discharging the air vertically and blanketing cold, exposed surfaces.

A complete reversal of conventional air distribution is involved. Since heat is released at the exposed surfaces of a room and return air is withdrawn through conventional intakes on inside walls, the new baseboard provides the warm air heating industry with another practical method of winter air conditioning: Warm Air Baseboard Heating.

From the inception of the air circulating principle of heat distribution when it was first applied to a base burner, to the gravity furnace, to the pipeless



This exposed conversation corner is made comfortable by discharging warm air from the baseboard beneath the windows.



Three applications of the baseboard

furnace, and to the conventional winter air conditioning system, warm air heating has been designed around a centrally located system of heat supply. In recent years, much attention has been given to the theory of releasing heat at the sources of greatest heat loss. This theory has been incorporated in varying degrees in floor and ceiling panels, perimeter, and baseboard heating systems. Everyone associated with the heating industry has observed these recent modifications in accepted design practices. A competing type of heating system first advocated the use of panels in modern construction and later proposed the principle of supplying heat at the base of exposed walls. Many designers of panel systems have recognized this principle

by increasing the output of heat in the vicinity of the greatest exposure. Baseboard heating goes all the way, by releasing all the heat at the major source of heat loss.

Similarly, the warm air heating industry has expanded its methods from conventional gravity and winter air conditioning to panel heating, perimeter heating, and now, warm air baseboard heating.

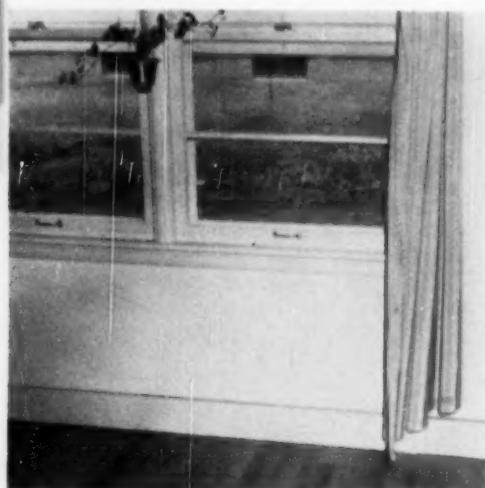
Few, if any, of the newer developments in the design of heating systems can be construed as new theories. The use of heating panels in early Rome is a generally known fact. According to E. E. Brandes, inventor of the warm air baseboard, the first patent for this method of introducing heat into a space was issued over 100 years ago. It was claimed on the principle of passing air, water, or steam through a device to be installed as a baseboard.

New Construction Influences Heating

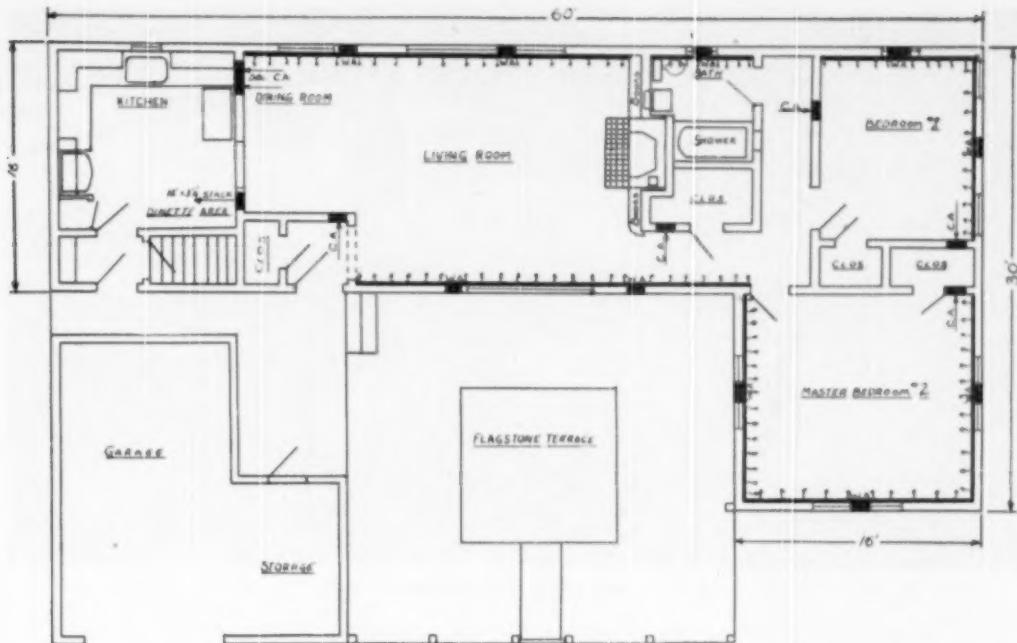
It is obvious that some of the newer methods of heating are merely modifications or adaptations of old theories. Consideration should be given to the motivating force behind these attempts to develop optimum *Indoor Comfort* for the American homeowner. It is apparent that the homeowner himself is the stimulus, for he is demanding more comfort in a house that is more difficult to heat. Basementless construction, ranch houses covering larger ground areas, conservation of living space, and generous window areas have become the symbol of modern architecture—the stimuli for improved heating methods.

The warm air baseboard method of heating takes special recognition of large windows as a source of high heat loss and drafts.

Several important departures from conventional heating methods are apparent in the warm air baseboard system. In addition to releasing heat at the source of loss, the vertical rising air stream reverses cold currents of air normally dropping down walls and windows. As the air stream nears its terminus at the



This photo clearly shows how difficult it is to distinguish the warm air baseboard from the conventional baseboard.



For pine oil by ebullition.

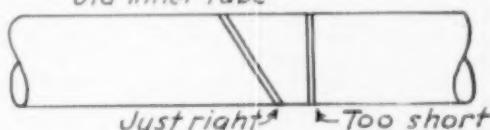
ceiling, its temperature has decreased from inducing and mixing cold air from walls and windows. At approximately room temperature, the stream spreads at the ceiling and slowly descends to the floor where it is returned to the furnace, as in a conventional system. Since the air stream is not projected horizontally into the occupied zone, air temperature is not critical. The system may be adjusted for Continuous Air Circulation with little, if any, regard for discomfort as heating load approaches its fadeout. The system occupies the same amount of floor space as a wood baseboard and requires only normal furniture clearances with walls, permitting unlimited arrangements in placement of furniture.

Application Is Simple

Warm air baseboard heating is designed with standard procedures and installed with standard equipment and piping. In new houses, the back of the baseboard is fastened to the studding, sufficiently above the subflooring to allow for finished flooring. The base itself provides a ground for plastered walls. Made in two parts, front and back, the back portion is roughed in before plastering and front is applied at the time of finishing. For wall board construction, a projection provided in a base designed specifically for this application makes a knife-edge fit with the wallboard, eliminating the need for finishing the joint. In existing homes, the dry-wall base is preferable because it is designed to make a suitable joint with wallboard or a wall that is already plastered.

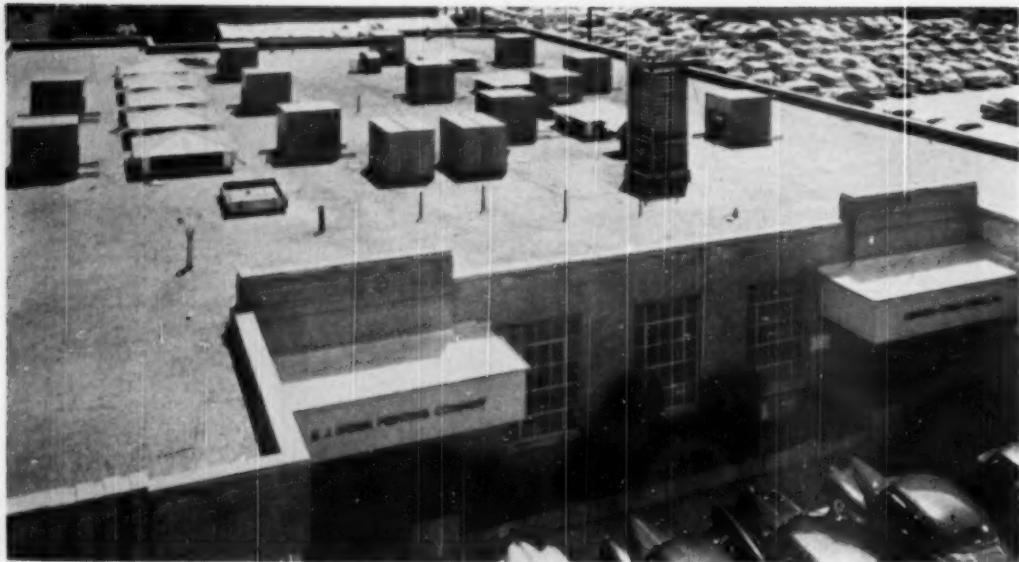
Emergency Belts

Small belts are commonly used today, some of them being made of round leather and some of rubber. Not long ago this writer was up against the problem of providing such a belt, and since he did not have any leather he attacked the problem by making use of an old automobile inner tube as indicated in the sketch.



The first belt, cut straight across, was a bit too short, as shown. It worked, yes, but was unnecessarily tight. A tight belt is hard on the bearings, causing them to wear and consume more power than they should. So the next one was cut at an angle as indicated by the words just right. This produced a belt of correct length. Obviously, by following this method it is possible to make excellent emergency rubber belts, of many lengths, out of a single old inner tube.

W. F. SCHAPHORST
Newark, N. J.



View of roof during installation

Air Washers Cool Type-Setting Plant

JOSEPH V. MARINER
Comfort Products Corp.
Dallas, Texas

SUMMER air conditioning in the West and Southwest is no longer considered a luxury purchase. It is now recognized by business men, in general, as a profit producing investment. The general public, on the other hand, is demanding it.

It is a proven fact that summer air conditioning is adding steadily to the profits of retail merchants, both from the standpoint of customer shopping comfort, and increased employee productiveness.

Studying the market further, we find industrial management now considering summer air conditioning as a paramount phase of plant remodeling and expansion programs. It is becoming more evident every day that industry is recognizing the need for better efficiency during the hot summer months, and is not unmindful of the need for better management-employee relationship.

Economical Cooling

Typical of industrial applications of air washers for summer air conditioning is the recently completed air washer installation for the type-setting plant of Jaggars-Chiles-Stoval, Inc., of Dallas, Texas.

The plant was first surveyed to determine the best

and least expensive method of installation. Data were obtained for an installation blueprint furnished by the factory to assure customer and dealer alike of correct installations.

The type-setting plant was found to be modern in every respect, with large industrial type glass windows along one entire side and much of the rear of the building. The roof is steel deck, with built-up roofing, and no attic space.

For the purpose of discussing this installation, we will refer to Sections A and B, inasmuch as the building is separated by a masonry partition running the entire length.

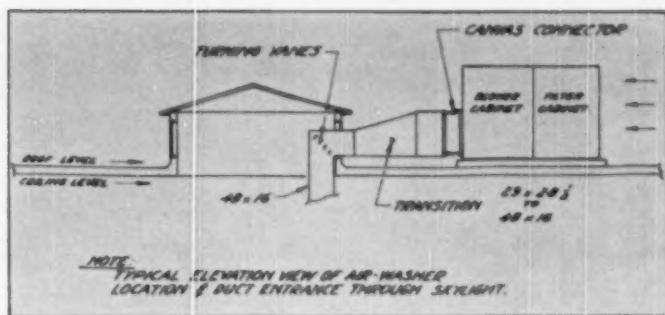
Consideration having been given to the geographical location, the nature of the business, internal heat sources, the shape of the building, and location and capacity of exhaust outlets, the following air washers and exhaust fans were specified for sections A and B, respectively.

Section A: 5 10,000 cfm air washers, and 4 42 in. exhaust fans.

Section B: 7 10,000 cfm air washers, and 5 42 in. exhaust fans.

The building is equipped with eight skylights, meas-

Fig. 1 Diagram of method of installation of washers.



uring 8 ft square. Five are located in section A; and three in section B. To avoid the expense of cutting through the steel roof deck, an installation was proposed whereby the units could be placed on the roof; and supply ducts run through the skylights and into the building. A plan view of the building indicates which skylights were used to obtain the best air distribution with a minimum amount of ductwork.

Sources of Heat

A survey of plant operations indicated three principal sources of internal heat: 1) the Linotype machines; 2) the Monotype machines; and, 3) the melting pots in the stereotype department.

The Linotype machines are located across the entire 65 ft at the front of section B. Each of these machines has been connected to exhaust ventilators to remove

the heat generated in this department, and to prevent it from being dissipated to the rest of the building. Having removed the internal heat at this point, ducts were run, as indicated; and by placing horizontal four-way grilles approximately 11 ft above the floor, it was possible to direct cool air to the operators in this department by distributing the air along the aisles between the Linotype machines.

The Monotype and stereotype departments are located in Section A of the building, along with the shipping department. The Monotype department is located at the front of Section A, extending approximately 25 ft from the masonry partition. The remaining 25 ft at the front of Section A is used for storage of engravings, and requires little cooling. The air to the Monotype department is supplied by 2 10,000 cfm air washers.

(Please turn to page 168)

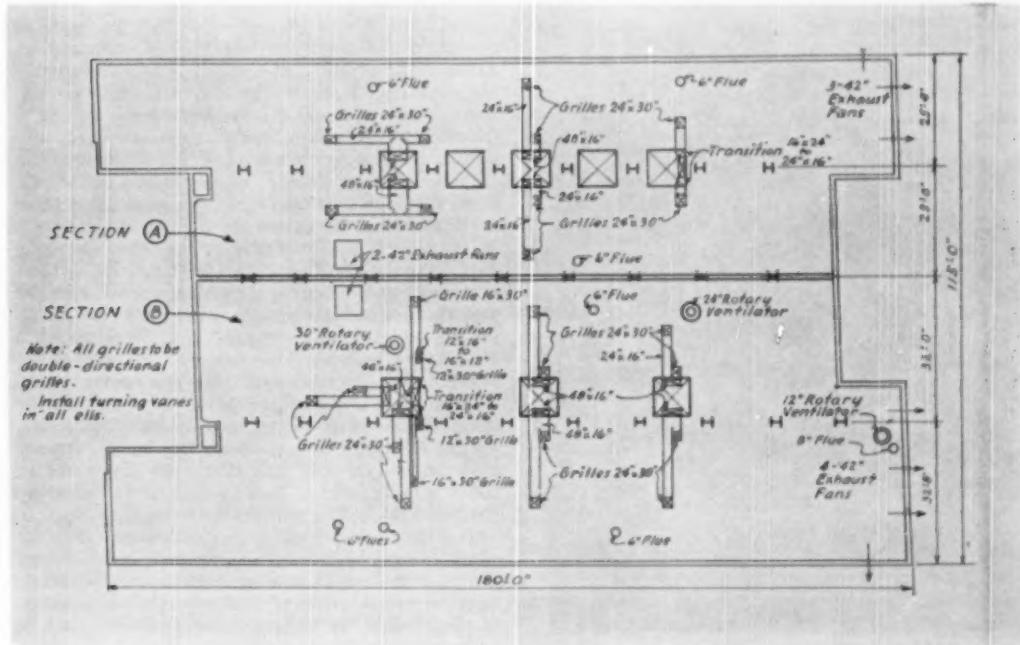


Fig. 2 Floor plan



High Speed Service Plan Increases Heating Sales Volume

ROBERT A. LATIMER

Denver, Colo.

EMPHASIS on service, adjustment and repairs at top speed at the time the job is sold has helped Glenn Angerman, heating contractor and sheet metal dealer in Denver, Colorado, to sell a volume of 750 or more heating systems per year.

Mr. Angerman, who began with seven employees in 1945 and now has a full-time payroll of 40, is an enterprising contractor who has applied service merchandising to every phase of his business. While 75 per cent of his heating contracts involve new-home construction and are sold through building contractors, he is equally aggressive in promotion of heating systems in remodeling, private-owner building and other fields.

The handsome showroom pictured, constructed in 1945 and continually modernized, is the opening step in service merchandising. New heating prospects, obtained either from semi-monthly display newspaper ads, or the enthusiasm of past customers, talk over their heating problems in a comfortably furnished showroom, where automatic heating equipment in all classifications is on display. Both Mr. Angerman and two full-time salesmen on the staff prefer to bring the prospect into the showroom to discuss all details, rather than working it out on paper in the customer's home. The primary reason is the tour which every prospective heating customer takes while visiting Angerman's south Denver headquarters. "At some time during every discussion, we invite the prospect to look over our facilities," Mr. Angerman pointed out.

"including the neatly-kept sheet metal shop, business offices, a file of photographs of successfully completed installations, and of course the heating equipment we handle. One of the most important steps is to stress our swift-service repair crew. We maintain two mechanics and two trucks exclusively for warranty maintenance and emergency repairs. This crew is on duty at all times for customer repairs. Pointing out to the customer that any trouble, no matter how minor, will bring a truck out to take care of it, invariably makes an excellent impression."

Swift Service Trucks

The two high-speed service trucks are kept packed with repair tools, sheet metal, instruments, etc., ready for instant use, and have been the source of much goodwill for the Denver contractor. Frequently, the fact that an Angerman repairman was on the job 20 minutes after a breakdown of a warm air heating system made a lifelong friend of the homeowner, instead of a complaining, dissatisfied enemy. Therefore, Angerman's sees to it that every contractor or individual homeowner is well acquainted with the service.

Many forms of promotion were utilized to build sales volume during 1948, when the company had a record year, and 1949, when sales approached the 1948 mark. As pointed out above, consistent newspaper advertising, of the Consult Us variety, is used twice a month through the year, and weekly during the heating season. Colorful, eye-appealing signs are placed on

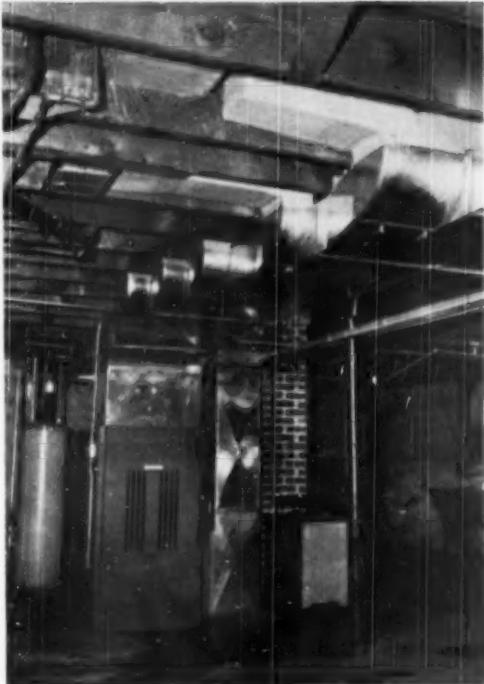


This well-equipped shop is shown to every prospect before the sale is completed. It has a tendency to instill confidence in Angerman's ability to service installations.

every construction job into which Angerman heating equipment is being installed, and have led to many prospect calls.

By and large, however, it is the satisfied customer who is the heating contractor's best bet in building sales, Mr. Angerman believes. Therefore, after every installation has been made, either the contractor or the salesman who sold the job calls on the homeowner, offers any adjustment the owner may need, and reminds the latter of the swift service always available. Then, as an incentive, a \$5 commission for the names of other heating prospects is always offered to the customer. While the amount involved is insignificant, it is sufficient to build up interest and an active memory in the homeowner. This simple technique has led direct to many remodeling and new home installations.

Mr. Angerman believes firmly in photography, and contracts for a commercial photographer to permanently record all outstanding home installations as completed by his crews. Resulting 8 by 10 in. photos line the walls of his office under glass, with such installations as Denver's first national-association approved perimeter heating system represented in the photographs. Likewise, the stream of pictures developed go into handsome ring-binder salesbooks carried by each salesman, with specifications and details of each job posted alongside the photo of the actual installation. With many years of service experience in



Photos are taken of well tailored installations like this to show prospects what type of work the company does.



A scene at the annual banquet for Angerman employees.
This is a profitable gesture in employee relations.



A representative group of products is kept on the sales floor at all times. The cutaway furnace helps make sales.

the Denver area, there are few prospects for whom Angerman's cannot find a photo and installation record which matches the homeowner's situation. Salesmen carry the books of photos on every prospect call, and frequently the neatness, ingenuity and excellent sheet metal work portrayed in the pictures has helped to clinch a sale.

Value of Pictures

"The old Chinese proverb that a picture is worth a thousand words holds particularly true in the heating field," Mr. Angerman said. "Almost every photograph we have taken has been valuable in selling similar installations later on."

He displays a complete selection of heating equipment each year at the Denver Home Show, and sees to it that skillful salesmen and photography are combined to interest many homeowners in modern warm air heat.

Lately, due to success in promotion direct to the homeowner the firm has been developing a direct mail program aimed at the building contractor responsible for volume contracts. This will be in the form of a

personal letter sent out at regular intervals to every building contractor in the Denver area. Included will be late news, jokes, and a complete explanation of Angerman services, what the company does, jobs it has completed, etc. "The letter will be used in much the same manner as a druggist details the physician who sends him prescription bearing patients," Mr. Angerman indicated. "We will be 'detailing' our prospects with plenty of newsy information and helpful suggestions which will build goodwill and respect for our heating installations, air conditioning, and sheet metal services. We'll keep the letters as informal as possible, and see to it that the recipient enjoys reading them." He has already listed the contractors, and one girl in the office will be charged with distributing them correctly.

Air conditioning developments in the Denver area are building sheet metal contracting sales heavily. Despite the fact that cool Colorado has few days on which air conditioning of a mechanical nature seems necessary, two major hotels and a new business building, several retail stores, etc., are installing it, which indicates an excellent market for sheet metal ductwork. Angerman's neat, eye-appealing sheet metal shop has expanded to one of the largest in the Denver area due to specialization in this field.

Employee Good Will

Finally, the Denver contractor is training his employees to look for potential heating or sheet metal markets. Twice a year he is host to the entire staff at a party held at a leading Denver hotel, when the year's business is discussed over a dinner, and employees invited to make recommendations. Such events, with plenty of entertainment and fun for the staff, have built a lot of goodwill and resourceful prospecting on the part of employees.

Direct Fired Heaters Simplify-Cut Costs For Commercial-Industrial Applications

R. F. SHARON*
East Port Chester, Conn.

Warm air heating equipment has been installed in a growing number of large commercial and industrial buildings. Direct fired heaters have been responsible for a share of this business.

MANY truck terminals along the Atlantic Seaboard are now heated with warm air. Compact, direct fired heaters provide adequate warmth for these garage-like buildings which are quite difficult to heat. Simplicity of installation and economy of operation have been major factors in the increasing applications of this type of heating unit.

Instead of producing steam, or hot water, these units heat the air by direct transfer, through a single thickness of metal, from the flame to the air stream.

In other words, instead of a boiler room, an array of steam pipes, with radiators or diffusers, the unit merely takes in cool air at the floor level, heats it, and discharges it above head level at 5,000 cfm. Fine Motor Transportation Co., Stamford, Conn., has stated that their direct fired heater cost about one third as much as a steam plant would have cost to install and is consistently economical to operate.

Unlike a steam plant, which must have an attendant, these direct fired, self-contained heaters are fully automatic. When the thermostat calls for heat, a switch starts the burner. When a certain temperature is reached, a switch starts the fan, and the warm air is circulated.

Economy and Convenience

At the Kingsport, Tennessee terminal of the Mason & Dixon Freight lines, one of these units was furnishing heat for the entire terminal. Answering our questions, M. F. Cassidy, Terminal Manager said, "We like that kind of heater because it's so economical and convenient. We don't need any attendant. Day in and day out it keeps us warm and we never have to touch it."

This terminal uses a small sized heater, of 300,000 Btu per hour output. This unit will take care of about 2,500 to 3,500 sq ft of floor space, depending on condi-

tions. A larger size produces 550,000 Btu per hour, enough to take care of up to 6,500 sq ft of space.

A Packaged Unit

"These direct fired heaters come from the factory with all parts in place, with nothing to assemble", we were told by E. P. Goucher of Capital Transit Co., Washington, D. C., a bus line that uses direct fired heaters in its terminal. "All you have to do is uncrate them, put them in the right spot, connect with the fuel line and the power circuit, and you are ready to produce heat."

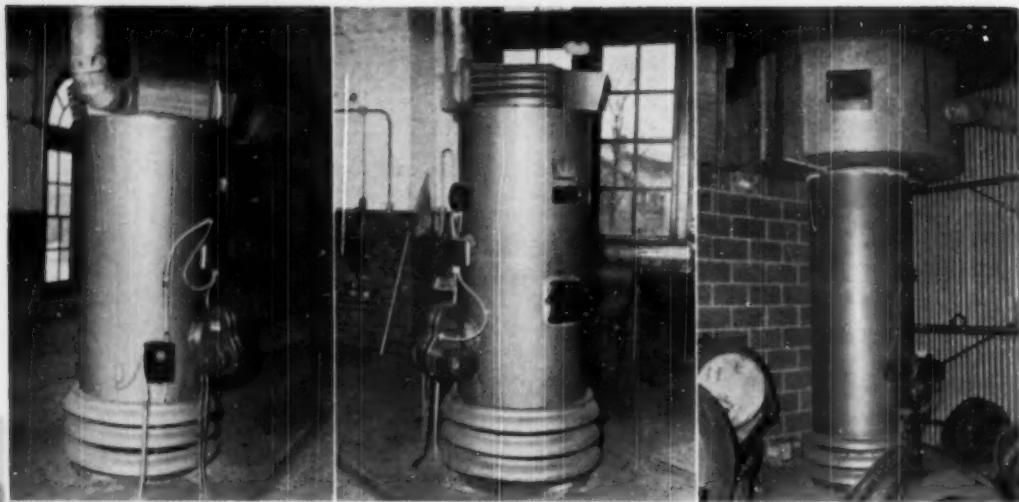
Direct fired heaters are made with either gas or oil burners. Normally, they do not require ductwork. If installed in a suitable open area, as found in the Fine Transportation company garage, they will throw the heat the full length and breadth of the building. It often happens that heat is needed for a washroom or private office, in which case duct can be fitted to one or more of the distributing heads and run to the place where heat is needed.

Another variation in distribution was found at the Fairfield, Conn., terminal of Associated Transport, Inc. In this building the heater was placed at the extreme rear. A sheet metal dome was provided, to feed the warm air to a long duct that runs along one wall, to the front of the building. This duct has been fitted with a number of outlets, to permit the warm air to be directed as desired.

Fire Regulations

Differences in installations indicate that fire regulations vary in their acceptance of this new type of equipment. Sometimes the local fire authorities want the unit to be housed in a cinder block compartment. It may be mounted on a 4 ft base, built of concrete or brick, so that the air for this heater

*Chief engineer, Thermobloc Division, Pratt-Daniel Corp.



These heaters are special applications for direct and indirect heating.

will not come from the floor level. In other cases, a sheet metal shield, 4 ft high around the base of the unit is sufficient. In no case do these self-contained heaters appear to be a particular fire hazard, in fact, they carry Underwriters approval.

Operators of bus and truck terminals who have installed direct fired warm air heaters seem to agree

that they are economical to purchase and operate. Each unit has all the essentials of a heating plant built into a neat, attractive casing and is automatically operated.

Another advantage is that in warm weather it is possible to turn on the fan alone and get fine ventilation for a terminal.

Comfort For Everyone

DENYING that "everyone wants a different temperature," Lester T. Avery, president of the American Society of Heating and Ventilating Engineers, told the Illinois Fuel Merchants Association that there is a temperature effective and comfortable for nearly everybody. His address was delivered at the 64th annual meeting of the association, held at the Morrison Hotel, Chicago, Ill.

Challenging the old argument about people wanting a different temperature, he said "that just isn't so," and cited experience with greatly expanded use of controlled conditions in war plants for productivity and comfort of workers. He said that laboratory experiments had shown that an individual generates enough heat to be equivalent to a 100 watt lamp. But moisture is also given off along with heat units.

"This concept throws additional responsibility on the heating engineer. It is not sufficient to provide too much heat. The body (the vital organs) are at 98.6 F, but the skin temperature ranges from 80 F to 90 F, with an average of 85 F. So, the nude body is in balance if the environmental air is around 85 F and not too moist. Your clothes, men's clothes, are insulating materials to be protective for about 10 to 12 F, so the normally clothed person loses his metabolic heat in an orderly way when his environmental air is about 75 F.

"Physiologists have studied man and his relationship to his environment and as early as 1774 determined a man could stand as high as 100 F saturated, 240 F dry. We've carried forward studies during the past years to

gradually determine the optimum for work and play, indoors. Always the question of humidity arose, so beginning in 1925 the ASHVE tested hundreds of people under many conditions and developed the Effective Temperature Chart and the Effective Temperative Lines. Here are combined the variables of dry bulb temperature, relative humidity, and nominal air motion to a single unit called effective temperature. The engineer has been using these lines but has been slow to get other professions to accept and use them. As a result the doctor, the physiologist, and the industrial hygienist still talk about temperature in a vague sort of way.

He said that research workers and physiologists agree that "the body is at minimum strain, best balance, highest threshold, makes fewer mistakes if the environment is below the perspiration point and at the point where the normally clothed person pays no attention to his air envelope. This is again in the same range of 68 to 71 F E.T. and it's time that all people in the business and profession begin to talk the same language.

"I challenge you to use the knowledge, the skills, the tools of our profession which are available. You frequently are willing to compromise because of the cost. The whole story of mankind's development, the increase in life span, the freedom from pestilence and plague has been his use of knowledge to control his relationship to his environment. Here we are in a position to control the environment. This is your obligation—and your opportunity."

Natural Gas and Residential Heating

L. OURUSOFF
Washington, D. C.

Growth of the natural gas industry in this country is described in this article. The speed of this expansion and its effect on residential heating are particularly dealt with.

THE subject of gas is extremely broad. So much so that any attempt to cover it completely is unthinkable. It is better, then, just to give a general picture of the overall scope of the gas industry; and later to narrow down our topic to the field of house heating.

The first salient fact about gas shows the rapid growth of gas sales in the past two decades in the United States—from 1.2 billions of therms to 3.4 billions or an increase of 200 per cent in the years from 1932 to 1950. To add perspective it is pertinent to show the population increase in the same period to be only 20 per cent. For an even sharper perspective of the magnitude of the gas industry, it is interesting to note that in 1948 gas represented 80 per cent of energy sales by U. S. utility companies.

The above facts give a measure of the gas industry on a national scale. A look at the local picture in Washington, D. C. shows a record development in gas house heating in the metropolitan area during the last 30 years.

The gas company pioneered in the house heating field with straight manufactured gas in the '20's. This gas was relatively expensive and thus found acceptance largely in the luxury market. Less than 1 per cent of new construction utilized gas for heating during this period.

Mixing Lowers Cost

In 1931 the mixing of natural with manufactured gas brought gas heating within the grasp of the high average income group. In our relatively mild climate public acceptance increased during the following eleven years until about 50 per cent of new construction featured gas heat.

With the exception of the war years when orders were limited, gas heating has gained universal acceptance in the last nine years. Conversion to straight natural gas and changing costs have produced a new price relationship between fuels that has enabled gas to take the lead in heating, serving over 95 per cent of new construction, including even the smallest houses.

Gas is a premium form of energy, costing more per Btu at your meter than coal in your bin or oil in your

tank. Why then is gas getting universal acceptance for house heating? Here are the answers as I see them:

1. Premium form of energy (high utilization efficiency permits competition with light oil and coal).
2. Easily ignited
3. Easily combustible
4. Instantaneous heat release
5. Easily controllable
6. Requires relatively small space for perfect combustion
7. Adaptable to all methods of heat transmission (convection, radiation, and conduction)
8. Constant fuel quality and heating value
9. Constant fuel pressure at furnace burner
10. Unfailing supply
11. Certified fixed rating (AGA) of equipment
12. Constant efficiency (AGA) of equipment
13. Atmospheric operation (silent)
14. Not dependent on draft
15. Clean
16. No storage requirement (increasingly important for large jobs in the commercial field; space saving roof installations).
17. Simple, compact equipment:
 - (a) Low maintenance cost
 - (b) Low first cost

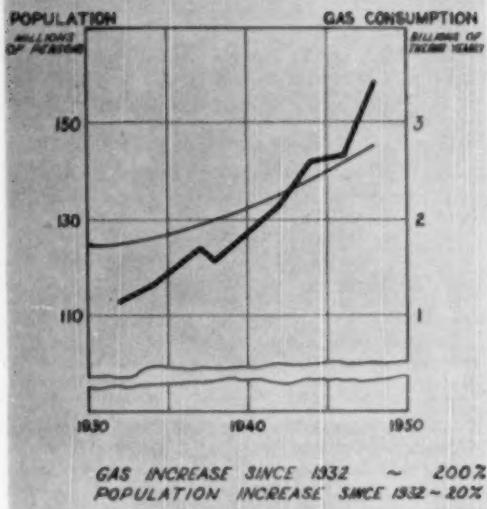
I think this analysis partially explains the growth of the preference for gas. Another factor, relating purely to economics, adds to all other features. I refer to fuel prices. The consumers' price index in the United States shows that in 1940 the index for gas, oil and coal was approximately 100. However, in 1948 the price index showed oil and coal to be over 180 while gas had remained stable at the 100 mark.

Although the city of Washington has been supplied with gas for over a hundred years, straight natural gas has been distributed here only since 1947. Therefore, it is interesting to learn about the conditions of supply from a standpoint of sources of fuel, reserves and pipelines.

Despite rapidly growing use of natural gas in the U. S. our national reserves are not declining. As certain areas become depleted, new discoveries are made which exceed the depletions. Moreover, many depleted fields are being regenerated and serve as vast storage reserves. In 1935 net production was about 3 trillion cu ft while proved recoverable reserves were 63 trillion,

A paper delivered before the Washington, D. C. Chapter of the American Society of Heating & Ventilating Engineers.

GROWTH OF GAS SALES IN THE U.S.



or the reserves were 21 times as great as the gas production. By 1948 the recoverable reserves had grown to 174 trillion cu ft, a figure 29 times the amount of production.

Until 1948 the natural gas supply to Washington, D. C.

was entirely dependent on a single 20 in. pipeline from Boldman, Kentucky to Rockville, Maryland which carried natural gas from the fields and wells of Kentucky and West Virginia to the gates of Washington. This picture has changed rapidly in the past year. Today an extension of this 20 in. line is linked to the Big Inch lines at Coatsville, Pennsylvania. The supply is no longer dependent on Kentucky and West Virginia gas alone, being now connected with Texas Eastern Transmission Corp. and Tennessee Gas Transmission Corp. lines originating in Texas. Furthermore, a new 26 in. line from Charleston, West Virginia to serve Washington and Baltimore is in the last stages of completion.

These sources and facilities of natural gas supply controlled by the Columbia Gas System who furnish us with natural gas are reinforced still further by underground storage fields in Pennsylvania and Ohio. In these locations excess gas is forced into depleted fields in summer, to be withdrawn in winter when demand for fuel is greatest. Propane plants scattered about the Columbia system in Kentucky, Pennsylvania, and Ohio serve a similar purpose. An additional important source of gas is available in Washington itself. It consists of the major portion of our former gas manufacturing facilities which have been converted to produce high Btu oil gas easily blendable with natural gas. This added capacity is used to supplement pipe line delivery in extremely cold weather and also serves as insurance in case of temporary curtailment of supply.

What is natural gas? How does it differ from the manufactured and mixed gas distributed in Washington prior to 1947? Examination of the significant differences as summarized in the following comparison will show that natural gas has several important advantages.

	Manufactured or Mixed	Natural
Heating Value	600 Btu/cu ft	1100 Btu/cu ft
Composition	CH ₄ , CO, H ₂ , C ₂ H ₆ , Other CO ₂ , O ₂	CH ₄ , Other Hydrocarbons & N ₂
Toxic	Yes	No
Sulphur	2.5 gr./100 cu ft	None
Gum	Traces	None

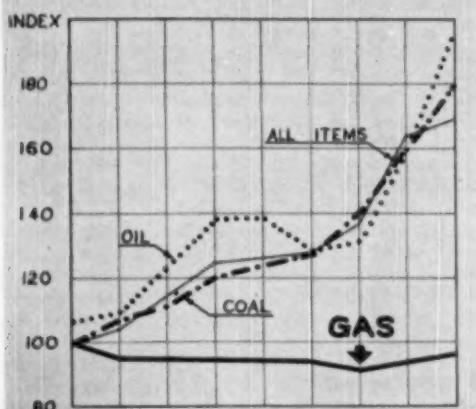
So far I have tried to give you a general background. Now let us turn to gas house heating, its particularities and its trends.

The major trend in gas heating in Washington is toward forced warm air furnaces, boilers are in second place and gravity warm air systems encountered only occasionally. Another use for gas, available mainly to the luxury trade at present, is all year air conditioning. A new piece of equipment on the market is the wall heater and a future development for gas heating may be embodied in the gas driven heat pump.

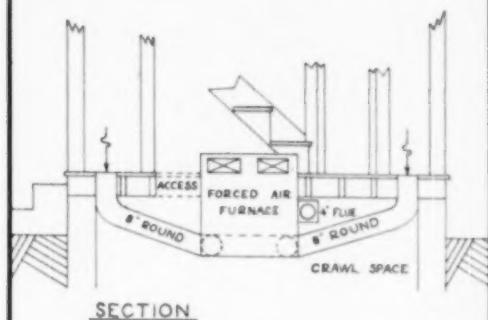
Since the trend in Washington is decidedly to forced warm air heating, it may interest you if we review the typical systems used in this area and cite some of the problems concerning their installation and operation.

The typical system of the prewar era was usually installed in a two-story house with a full basement.

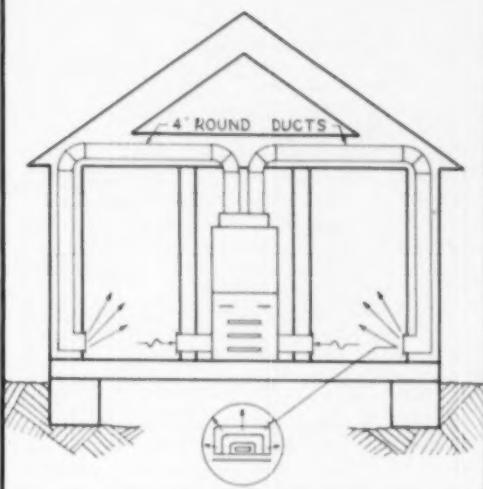
CONSUMER'S PRICE INDEX IN THE U.S.



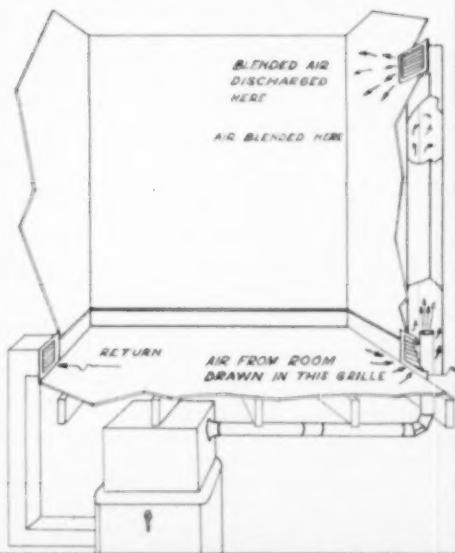
LATE PRE-WAR SYSTEM



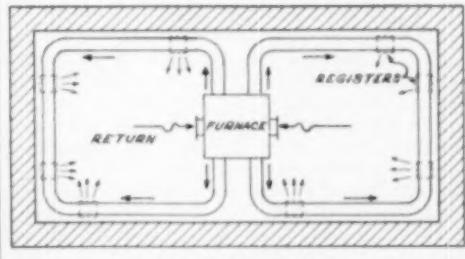
G. E. AIR-WALL SYSTEM



COLEMAN BLEND-AIR



PERIMETER SYSTEM



Top—Fig. 1 and 2. Bottom—Fig. 3 and 4

Characteristics were:

1. Ample combustion air (doors, windows, large cubical content)
2. Fully accessible furnace
3. Standard lined masonry chimney
4. Large trunks, branches and risers
5. Streamlined duct fittings
6. Powerful blower
7. Ample filter area and air delivery (low air velocities and friction, silent operation)
8. Independent risers for each room
9. Return area equal to supply area
10. Metal return ducts from each inhabited room
11. Low register velocities
12. Dampers in supply and return system
13. All registers near floor level
14. Return registers near coldest exposures

These installations gave even heat with warm floors, no drafts, and economical operation. Thousands were installed in 1930's giving satisfactory performance, but just after the war, scarcity of materials, rising construction costs and the trend to ever smaller houses caused far-reaching changes.

The first evolution occurred when some installers felt forced to depart from the accepted standards we have just reviewed by cutting down quality and quantity of materials and workmanship. Let's again go over our list and see what happened:

Items 1 & 2: Furnaces were frequently crowded into confined closets without proper provision for combustion air supply or access for routine servicing.

Item 3: Many substitutes for standard lined masonry chimneys were tried, some of which were neither satisfactory nor safe.

Items 4 thru 11: Duct systems were cut to the bone and beyond in an attempt to economize on material, and due to the lack of skilled labor. Fittings were of poor design giving high resistance; ducts, particularly returns, were inadequate; and other requirements for adequate air delivery were slighted so that in some cases total air delivery was insufficient to carry away the heat furnished by the furnace.

Item 12: Adjusting dampers were frequently omitted. Responsibility for balancing the system was left to the builder or occupant.

Items 13 & 14: Register and grille locations were selected on the basis of first cost only resulting in cold floors and drafty conditions.

I think you will agree that, unless you are exceptionally skilled and lucky, it will be impossible for you to secure anything even approaching permanently satisfactory heating results, just by cutting corners.

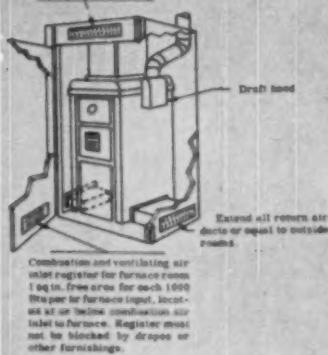
What, then, seemed to be the other answer? It appeared obvious. To find a new approach and create an entirely new design to meet the new conditions—not to mutilate established standards.

Fortunately, it is evident that industry is now making progress in developing original solutions to the problem of economical heating systems for compact, basementless, low-cost houses.

The problem is attacked by way of careful planning, rational engineering design, research and experimentation. Many groups are participating in this development: equipment manufacturers, builders, engineering societies, trade associations and universities.

AGA RECOMMENDATIONS FOR INSTALLATION OF FURNACES IN CONFINED SPACES

Ventilating air outlet register for furnace rooms 1 sq in. free area for each 1000 Btu per hr furnace input, located above outlet opening of draft hood. Register must not be blocked by drapes or other furnishings.



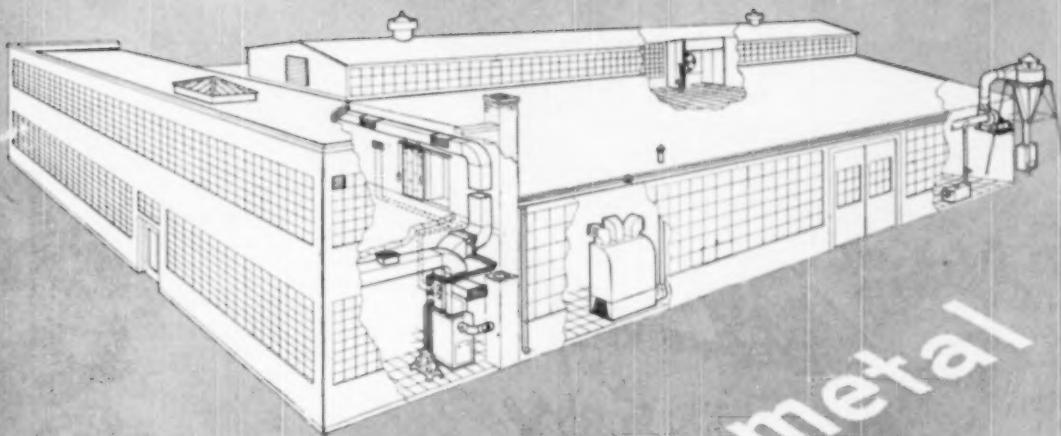
Let me illustrate some of these new approaches taken at random. There is no thought here of endorsing any particular system but rather to demonstrate that new ideas are being tried.

Fig. 1 shows installation of an under floor furnace of special design which, equipped with a low speed propeller fan, blows air through a plenum to baseboard registers and returns air from all rooms through large round ducts. This system was developed late pre-war through the mutual efforts of a local builder, a manufacturer and the Washington Gas Light Company. This unit can best be installed in a house designed with consideration for its advantages and limitations. When so installed it meets almost all of the tenets of high quality warm air systems previously listed and furthermore can be installed at a very low first cost. The Bureau of Standards report of heat distribution with this unit installed in their test house ranks this system higher in performance than most systems tested.

Small Duct Systems

Fig. 2 and Fig. 3 show systems, developed by their respective manufacturers which aim towards a reduction of duct size and installation costs through the use of 3 to 4 in. round ducts. The Air-Wall system accomplishes this through the use of higher fan pressure, lower air quantity and higher air temperatures with a distribution of the air delivered through a wall type diffuser of special design which is located near the baseboard in the outside wall and spreads the air delivery over the outer wall surface. The Blend-Air system also employs lower air quantity and higher

(Please turn to page 170)



Sheet metal Section

DESIGN • FABRICATION • INSTALLATION
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NEW IN PERFORMANCE. New in quality. While known as a Carpenter's Pincer, No. 282 is a very versatile tool for any professional mechanic. Cutting edges are keen and leverage is ample for easy cutting. In addition to the uses illustrated opposite, No. 282 has a screwdriver point on one handle. Traditional Crescent quality. Polished jaws, parkerized handles. Three sizes . . . 6, 8 and 10 inch. Sold by Hardware Dealers and Industrial Distributors. Send for Catalog No. 26.

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United Nations Secretariat Building Uses Miles of Stainless Steel Flashing

R. C. NASON
Great Neck, New York

One of the most discussed new buildings in the country is the UN Secretariat Building in New York City. It is an interesting application of sheet metal and glass to a modern tall structure.

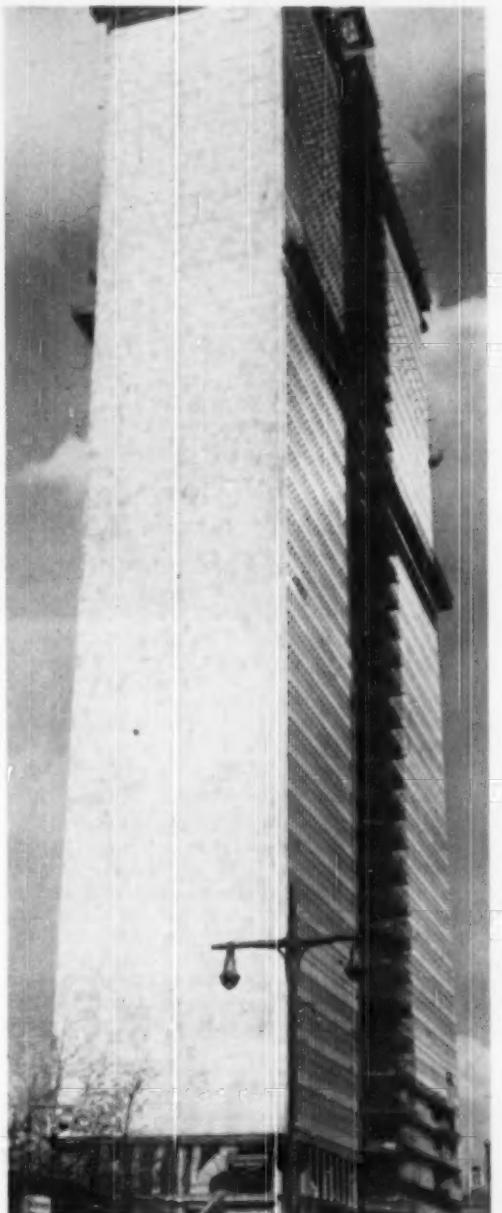
ARCHITECTURAL applications of stainless steel have been on the increase in this country in recent years. This is a result of growing recognition of the metal's strength and durability. A recent installation of great interest is the weatherproofing of the initial unit of permanent headquarters of the United Nations, located in New York City. Plans for this building required the sheet metal contractor, A. Munder & Son, Long Island City, to seal with metal all openings above and below the windows. The building is 280 ft long and, as the photographs show, two of the sides are almost entirely metal and glass. The job took 17 tons of .018 in., class 302, stainless steel for the spandrel flashing, of special design.

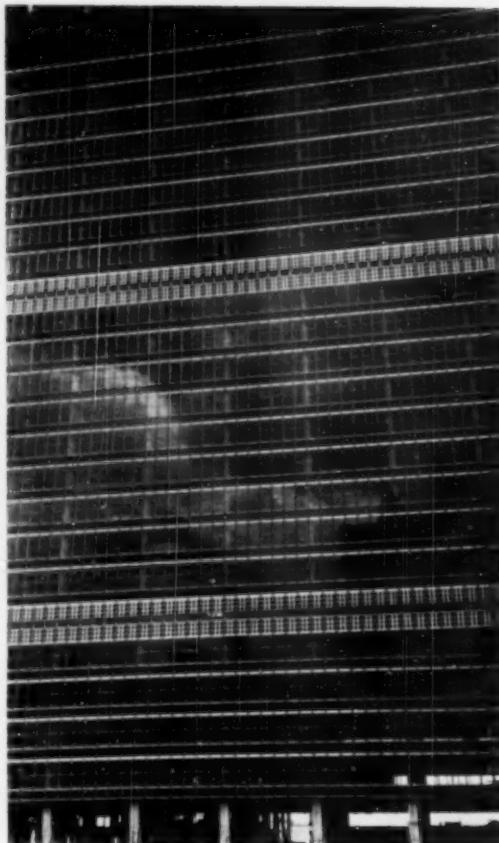
Spandrel in Sections

The spandrel, as installed by this contractor, comprises two sections, one overlapping the other. Shop fabricating operations were comparatively simple and yet special enough to be exacting. Each 8 ft section, consisting of an upper or cap piece and a lower or base piece, has two 90 deg bends along its length. The bend was produced by a single stroke in an 8 ft power press brake. The cutouts which were required in each section were more difficult to make.

When the two pieces were installed on the building the upper flashing shape was deeply lapped over the lower section. Thus the former became an upper floor, sill flashing while the latter was a head flashing for the lower floor. The two together comprise the span-

The dramatic design of this 39 story building is revealed in this photograph. Each end of the structure is encased in gleaming marble.





Stilt construction of the base of the building can be seen in this photo.



All metal crossmembers which are visible are aluminum. The stainless steel work of the contractor is concealed.

drel. Most of the special cutting was required in the head flashing section.

Cutouts for Mullions

Mullion cutouts $6\frac{1}{4}$ in. long by $2\frac{3}{4}$ in. wide had to be made in the base edge. Center to center distance between the cutouts was 4 ft. At the head of each cutout shallow drip pans were attached by soldering. These pans, $2\frac{3}{4}$ in. long by $1\frac{5}{8}$ in. wide, by $\frac{1}{2}$ in. deep, were formed on small folding brakes after which the corners were closed with solder. Next operation was to solder the pans to the cutout heads. The purpose of this device is to trap condensation which might otherwise run down the window mullions to disfigure them and cause corrosion.

Additional processing of the spandrel flashing parts consisted of a large number of $1\frac{1}{2}$ in. diameter holes that were punched in the horizontal surfaces (as laid). These holes were punched on 4 ft centers to allow the passage of studs to which the window frames were anchored. One pair of holes was specified midway between the section joints. Groups of four holes of

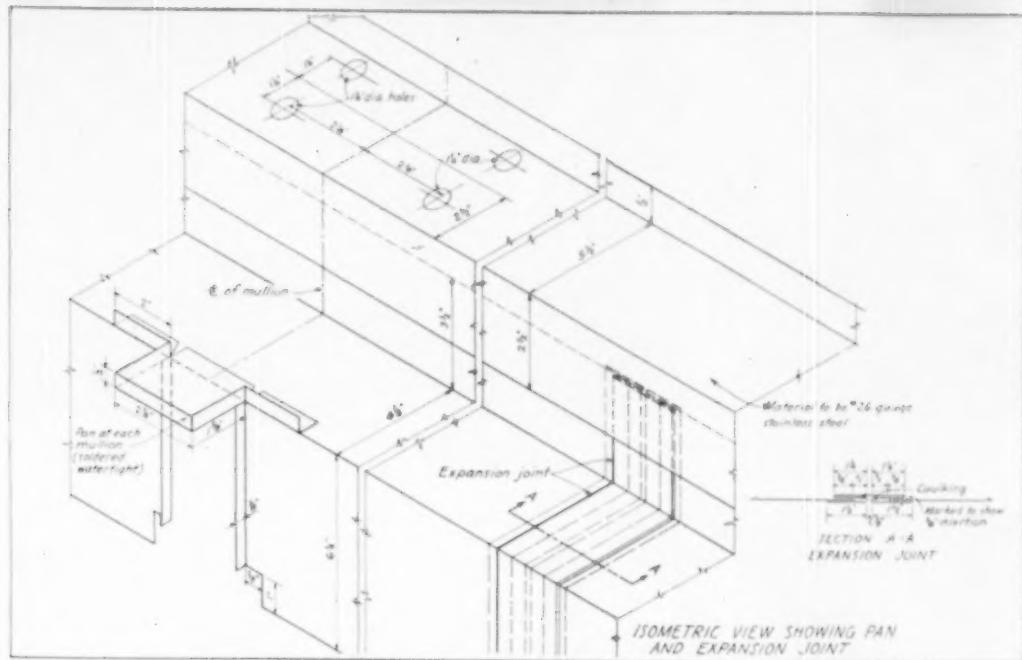
this size were located in pairs at either side of the transverse stainless steel section joints. This type of stud bolt was used throughout the anchor window casings and for many other purposes.

An application of stainless steel of this type is not to be viewed from the appearance standpoint, since once installed it is hidden. Certainly it cannot be compared to the gleaming expanse of marble at the ends of the building, each 75 ft wide and 39 stories high, nor to the aluminum enclosed windows of the sides of the structure. Nevertheless, stainless steel's contribution to structural durability is important.

This metal was chosen for its imperviousness to the action of concrete, with which it is in contact on this job, plus its resistance to weather damage. The architect purposely selected an alloy that is easily fabricated in the shop to simplify the installation.

Stock in Coils

The rolling mills furnished the 17 tons of material in coils of two widths, $8\frac{1}{2}$ in. and 14 in. Total was 309 coils, each weighing in excess of 100 lb. An initial step in plant procedure was cutting the coil into 8 ft section



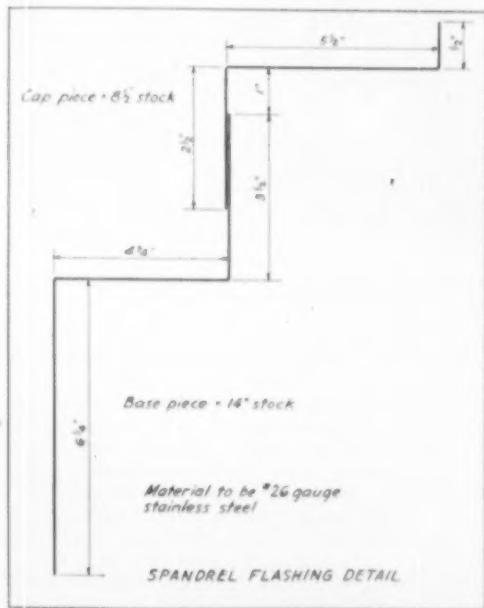
lengths. To do this, special uncoiling and measuring steps had to be considered.

A suitable uncoiling spool was made by the sheet metal contractor by welding two 16 gauge steel discs of 18 in. diameter to a solid spool center piece or drum. In the centers of the side discs were welded short 1 1/4 in. diameter steel pipe nipples to serve as sockets for a 3 ft axle of 3/4 in. pipe. The axle passed through the nipples loosely and protruded about 1 ft on each side. To prevent the coil from sliding sideways during un-winding, two 25 in. diameter steel retaining discs were strung on the pole. The coil was supported by thrusting the pole ends through adjustable height roller-top stands. Two limiting lugs prevented the coils from overrolling forward as the strip was processed.

Gaging Setup

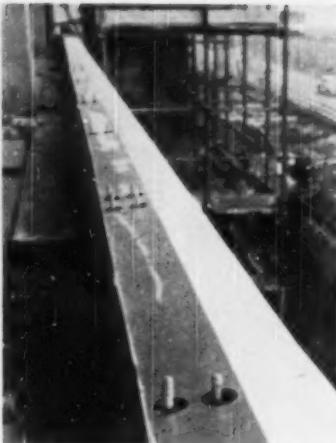
The uncoiling drum was placed 5 ft from a 4 ft shear located at the end of a bench. The bench, of the same height as the shear blade, had a transverse angle iron bolted to it, exactly 8 ft from the shear blade. When a mechanic had pulled enough strip from the coil to meet the angle iron gage, the correct cut line was under the shear blade and a cut was made. Experience showed the advisability of keeping shear blades sharp to prevent burring or drag.

Since the press brake was located only 15 ft away, a steady stream of blanks flowed to it. Mullion cutouts were handled simultaneously with bending by means of special dies made by the contractor.

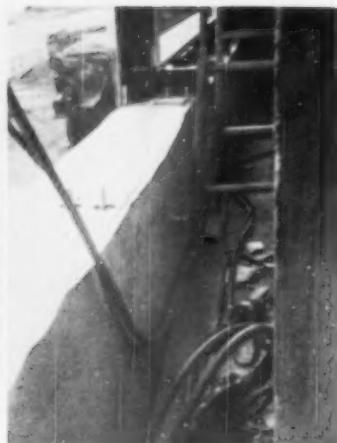




Workman is shown holding the lower section of the spandrel flashing.



Sill flashing is stainless steel with anchor bolts projecting through.



In the background can be seen one of the aluminum window casings in place.



Mechanic is soldering the flashing for the terrace wall. This flashing is described in the text of the article.

Most of last summer was occupied with fabricating and laying flashing sections. All these sections had to be soldered at 8 ft intervals on the site. Coppers used were large and kept at medium heat. Excessively hot coppers were found to have a distorting effect on the sheets adjacent to the joints. With stainless steel flux the soldering was completed without undue complications. Surplus flux was removed with a weak solution of bicarbonate of soda and then the joints were wiped dry.

Every 56 ft, or seventh flashing section, transverse expansion joints had to be installed in all lower sec-

tions. Joint caps were applied to the sheet ends, loose-locked and then flattened and caulked. Joints between the sections were butted together rather than locked. The result was a flat joint which offered no impediment to shimming and setting the window casings. Gross projection of the completed spandrel flashing was 9 $\frac{3}{4}$ in., depth 10 $\frac{1}{4}$ in., and the upper section overlapped the lower by 2 in.

Each side of the building required 22,000 lineal ft of stainless steel sections, or a total of 44,000 ft. Since each section was 8 ft long the contractor had to fabricate and install more than 5,000 separate sections.

Terrace Flashing

At one end of this UN Secretariat building, the office headquarters for general personnel, is a low terrace. The terrace is reached by a stairway of 12 1 ft steps, 18 ft wide. Sidewalls of this stairway are red brick finished in stucco. It was necessary to through-flash the sidewalls with .021 Monel.

The mechanics carried the sheet metal over the top of the staircase walls and 4 in. granite slabs were laid on top as a finish. The flashing was brought down the sides and onto the decking on which the steps were placed. Each step end had to be covered and soldered to the sidewall flashing for weather tightness. End caps were about 1 ft by 1 ft. It was on this terrace that President Truman recently laid the cornerstone with great ceremony.

Another Contract

Several other phases of the construction of this building are of interest, particularly the air conditioning, but space does not allow a description. The architects for the Secretariat building contracted to have the Munder company install stainless steel flashing on a large new building in Pittsburgh, Penn. The project is the Mellon Building and sheet metal work has already begun.



Ventilation dormer shown is made of stainless steel as is the chimney flashing. This installation is over 10 years old.

Strength of Stainless Steel Proves To Be Economy Factor

RICHARD E. PARET
American Iron & Steel Institute

ENOUGH rain and snow fall on the average residential roof during a year's time to form a lake almost 2½ ft deep.

This statement was made by one of the country's leading steel companies. It could make the home-builder and sheet metal contractor think twice when planning to construct a roof drainage system that is strong and tight and also practically indestructible over a long period of time. The answer may be found in stainless steel gutters, downspouts, conductor pipe, flashings, and other roof fixtures. This metal assures protection against atmospheric corrosion and general wear and tear.

No Deterioration

There were a number of stainless steel roof drainage installations in scattered parts of the country 15 years ago. These systems upon recent inspection have shown no signs of deterioration or ill effects after years of exposure to all kinds of corrosive atmospheric conditions and weather. Even the smoke, soot and sulphur

fumes of a Pennsylvania steel town had no marked effect.

Increasing Acceptance

Only in the past 3 years have manufacturers offered stainless steel materials to the public in any great quantity. Installation of roof drainage products of this metal has gained increasing acceptance. Important factors are strength and durability. Because of greater strength stainless steel is able to compete price-wise with other premium metals.

Savings in Paint

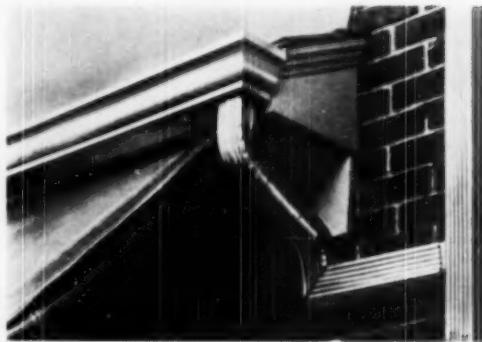
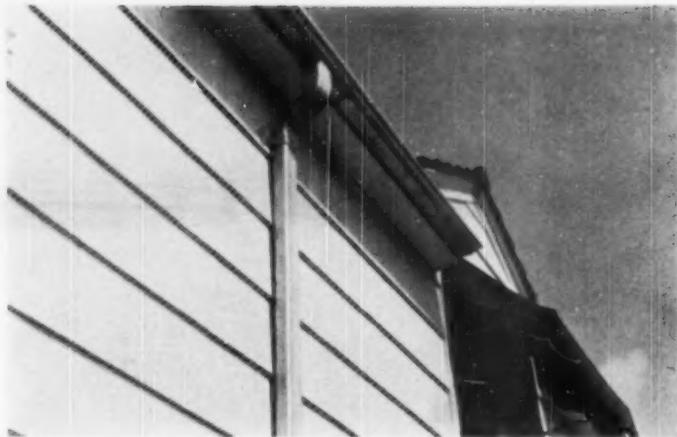
The economy of stainless steel fixtures is directly related to durability under exposure. Gutters and downspouts don't bleed or cause streaking and discoloration on walls. Such discoloration is due to the washing down of corrosion products formed by some materials.

This lack of bleeding assures savings in repaint jobs and more permanently attractive exteriors throughout the life of the house. The entire roof drainage system

This Ohio residence has an entire roof drainage system of stainless steel—gutters, downspouts, valleys and flashings.



Even a complicated setup like this can be soldered and fabricated easily when stainless steel is used.



has to withstand heavy snows and frequent ice loads in many parts of the country. Other conditions which add to the hazards of drainage fixtures include sleet and hail, soot and cinder deposits, acid or alkali fumes, abrasion from roofing gravel, heavy smoke and fog, birds' nests and droppings, rotting leaves, twigs, and vines. Against these conditions stainless steel provides strong, adequate protection.

The 10 to 15 year old installations on homes in different parts of the country have established the durability of stainless steel drainage fixtures in severely corrosive atmospheres. These actual case histories bear out scientific tests over longer periods of time by organizations like the American Society for Testing Materials.

Handsome Appearance

Aside from factors of economy, minimum maintenance, and durability, stainless steel drainage systems have a great deal to offer the architect and home builder in their handsome appearance, pleasing color and enduring luster. These features complement and help set the architectural tone of any residential structure. Where a natural finish is desired, the metal needs no other care than occasional washing with soap and water. If normal deposits of dirt and soot are acceptable in certain locations, no cleaning at all is necessary.

Sometimes stainless steel is painted to make it blend with other materials used in residential construction. Suitable paint lasts well because no corrosion products form underneath to destroy the grip of the paint, in spite of penetration of atmosphere. When paint is specified, a vinyl-type primer should be used to provide a tight undercoat to which standard paints will adhere. Sprayed or brushed onto the metal at temperatures ranging from 10 to 100 F, the primer will set in about 10 minutes. Under most conditions 6 to 8 years of service can be expected of a vinyl paint used over a vinyl primer.

An important factor in the usefulness of stainless steel for roof drainage work is high yield strength. That is, the load which stainless can take without permanent deformation. Compared with other materials commonly used for roofing fixtures, stainless steel's yield strength is two to four times as great.

Because of this extra strength, it is possible to use lighter weight sections. This means economy in material and erection costs. A considerable saving in time and money is possible for the fabricator and installer who can preassemble sections in the shop or on the ground. Much joining work formerly had to be done in place. Now it can be done on the ground, where there is greater freedom of movement in reaching locations otherwise inaccessible.

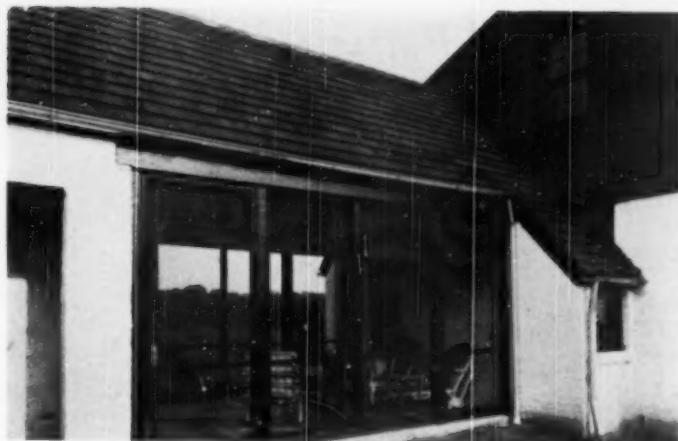
This extra strength resists buckling and cracking because of wide temperature changes. Denting and crushing during shop fabrication and installation are largely eliminated.

Specifications for the metal from which roof fixtures are made have been established by field experience, rechecked by metallurgical and other laboratory work. The following recommendations have been generally accepted for maximum economy for permanent installations of stainless steel roof drainage products:

Type 301 Stainless Steel

Carbon	over 0.08—0.15 per cent
Chromium	16—18 per cent
Nickel	6—8 per cent
Thickness	0.015 in.

Finish: Hot or cold rolled and annealed.



This metal is very practical for white houses because it will not bleed and stain walls.



Joining a straight gutter section to a mitred joint. Rigidity makes handling easy.



It may be advisable to use Type 316 stainless steel for some cases, especially where very severe corrosion conditions exist, such as directly on the seacoast.

Prefabrication of stainless steel roof fixtures is practical from many standpoints—economy, speed, independence of weather conditions. It is actually encouraged as the best way of preparing units for installation. Easy handling is characteristic of shop fabrication of stainless steel. Since the metal is rigid and stays in shape, even extremely long sections can be handled by shop employees readily.

No Special Tools

Regular shop equipment can be used for fabrication. No special equipment is required. All tools should be cleaned thoroughly before use on stainless steel to prevent contamination from zinc or other metal particles. In general, it has been found necessary to use equipment somewhat heavier than required for an equivalent gauge of mild steel. It is generally necessary to compensate in tool settings and techniques for the toughness and strength of stainless.

When shearing Type 301 stainless steel, very sharp blades with a clearance of 0.001 to 0.002 in. should be used. The metal must be cut all the way through, as it does not break off when partially cut.

More Power Required

Type 301 stainless steel can be brake formed with the same equipment and methods used for other roof drainage materials. Its greater strength requires more power in the forming, usually from 25 to 50 per cent. Either hand or power brakes can be used. Standard brake dies, vee knife, square and similar dies are suitable and will form roof drainage components with sufficient accuracy for general use.

Protect Surfaces

The more highly polished stainless steels should be protected during fabrication and shipment. Plastic coatings can be sprayed on and allowed to remain through the shipment stage. Adhesive tape, especially prepared protective papers with a gummed surface, ordinary newsprint or wrapping paper fastened with wall paper paste, can also be used.

For soldering stainless steel use a high grade solder with a tin content of 50 to 70 per cent. Flux with special stainless steel flux, raw hydrochloric acid (muriatic acid) or a flux containing one half uncut and one half cut acid. A large soldering iron, slightly hotter than one used on galvanized steel, should be provided. All traces of acid or flux must be removed immediately after soldering. To do this use a 5 to 10 per cent solution of washing soda, soap and water.

Solder Carefully

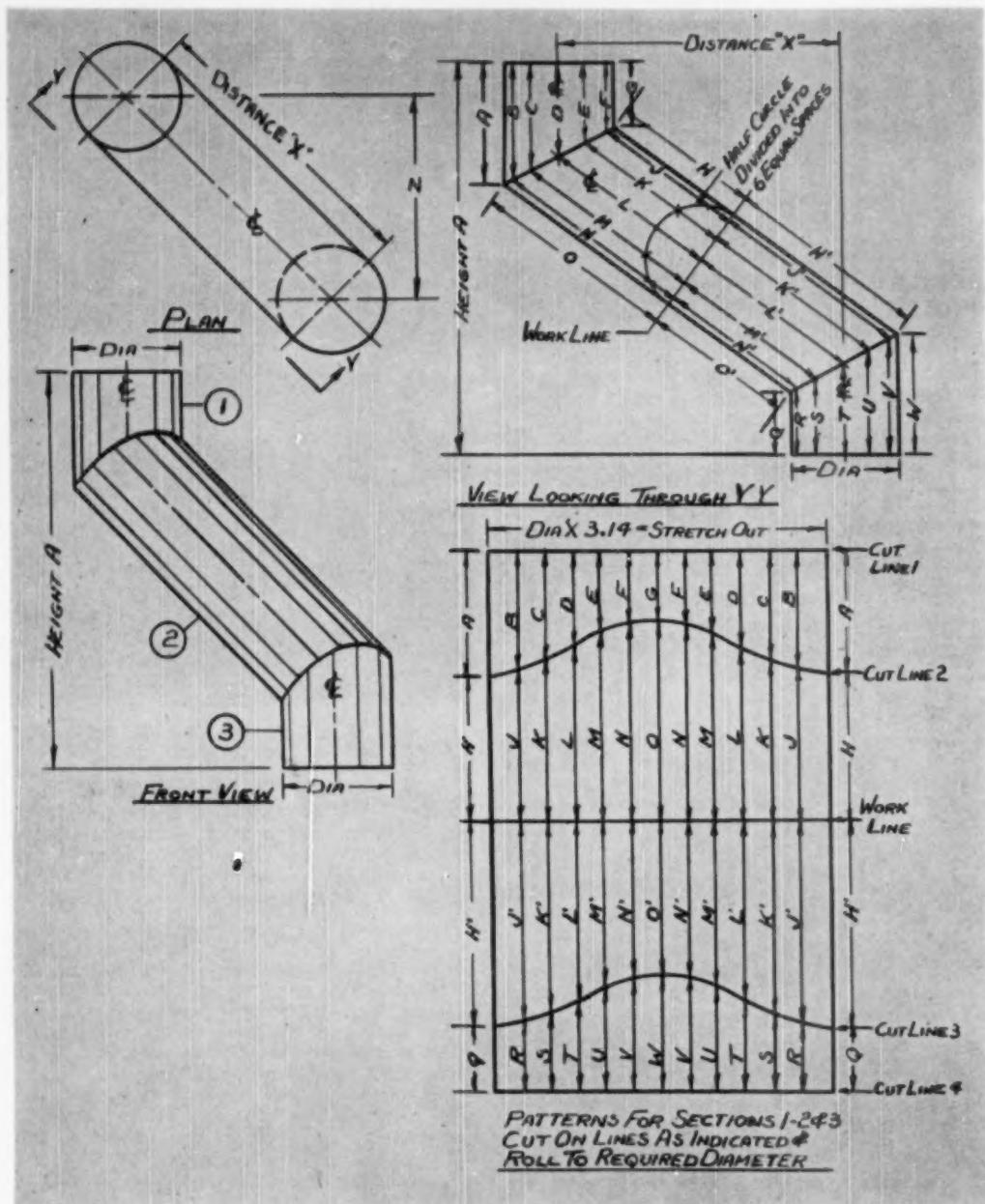
Shop fabricated sections or ready-made gutter, downspout sections and other units which are stocked by many warehouses can be assembled either in the shop or location. It is important that location soldering be as carefully done as shop soldering, with all traces of flux and acid removed immediately.

Fasteners for roof drainage units are, in many respects, as important as the units themselves. Common fasteners rust far more rapidly than usual when used with stainless steel, and should be avoided entirely. In their place, chromium-nickel stainless steel nails, hangers, hooks, circles, shanks, rivets, screws, cleats, and other fasteners should be used.

After installation, the entire roof drainage system should be cleaned thoroughly. For this job, use non-corrosive scouring powders and fibre brushes to remove

(Please turn to page 174)

Sheet Metal Pattern



Oblique Offset Pipe – Hugh B. Reid

Pattern Development For Oblique Offset Pipe

HUGH B. REID
Detroit, Mich.

RECENTLY a subscriber of AMERICAN ARTISAN submitted a sketch similar to that shown by the plan and front view of the drawing. The problem that confronted the writer was that of determining the true angles and the true length of the section of pipe marked Number 2.

Measuring True Lengths

It is known theoretically that the true length of a line can be measured only when the line is parallel to a plane of projection. This can be illustrated by holding a pencil at an angle to a desk. When both ends of the pencil are projected on to the desk and a line drawn, the line will be shorter than the pencil. If the pencil is held in a position parallel to the desk and both ends are projected on to the desk and a line is drawn, the line will be equal to the length of the pencil.

Keeping this in mind and looking at the plan view we readily see that Section 3 is distance Z in front of Section 1, which indicates that all lines in Section 2 are oblique to the vertical plane.

Taking another look at the plan view, we note that by looking through Section Y-Y that the distance X is the true distance between Section 1 and Section 3. By projecting the offset pipe on to a plane parallel to the center line distance X , all lines will be true length lines and the angles will be true angles. This suggests that the logical solution is to draw the view marked section looking through Y-Y.

The drawing requires the following steps:

- Measure off distance marked height A and draw parallel lines.
- Assume center line marked D and draw a line.
- From center line D measure off distance marked X and draw center line marked T .
- On center lines D and T measure off desired lengths and draw center line L .
- Draw lines perpendicular to center lines D , L , and

T and measure off diameter as shown. Note that the diameter line marked work line I is an assumed line and can be drawn anywhere on center line L .

- From the intersection of the center line and work line I draw a half circle equal to the pipe diameter. Divide this half circle into six equal spaces, through the equal division points on the half circle. Draw the working lines as shown by letters A , B , C , D , E , F , G , H , J , K , L , M , N , O , P , Q , R , S , T , U , V , and W . This completes the working drawing.

Laying Out Pattern

The patterns are laid out as follows:

- Draw line marked work line and measure off the circumference (Note the circumference is found by multiplying the diameter by 3.14). Divide the circumference line into twelve equal spaces and through the equal division points draw lines perpendicular to the work line.
- Transfer lengths H , J , K , L , M , N , O , from the drawing to the layout, working above the work line.
- Transfer lines H' , J' , K' , L' , M' , N' , O' from the drawing to the layout, working below the work line.
- Through the developed points draw lines marked cut lines 2 and 3.
- Measure distance marked D on drawing and from intersection points L and cut line 2 on layout. Draw arcs. Through the arcs draw a line as shown by cut line 1.
- Measure distance marked T on drawing and from intersection points L' and cut line 3 on layout draw arcs. Through the arcs draw a line as shown by work line 4.
- Cut patterns as shown and roll to required diameter.

Gichner Plans Ideal Shop

ERNEST E. ZIDECK

Sheet Metal Consulting Engineer

When a contractor has seen a great number of sheet metal shops in operation and observed their good points and shortcomings, he is in a better position to plan his own shop. This has been the experience of Lawrence Gichner of Washington, D. C.

WHEN the decision was made to build a new shop to house the operations of Gichner, Inc., sheet metal contractors in Washington, D. C., all possible factors were taken into consideration in building design and layout. Lawrence Gichner, head of the company and a frequent contributor to *AMERICAN ARTISAN*, had seen enough shops in operation to have definite ideas about the most efficient way to plan the equipment layout and work areas.

Equipment Listed

The drawing of the shop is keyed as follows: 1 is a shear; 2, a drinking fountain; 3, a large electric punch; 4, a bandsaw; 5, a power punch; 6, another punch; 7, a large press brake; 8, a small press brake; 9, a small hand brake; and 10, a large hand brake. All this equipment is located along the wall of the sheet metal shop. A free area of 400 sq ft is left for assembly of large sheet metal products. The row of benches 17 takes up considerable space but they are movable and can be located so there is no interference with any work in progress. Small tools located at 24 can be moved toward the bench 23, placing this equipment in line with the grooving bar 35. The result is a 10 ft aisle between the machines.

A drill press is at 11; a pneumatic spot welder at 12; a rotary punch at 13; a power driven roll former at 14; emery wheel, 15; large bandsaw, 16; and a vertical sander at 18. In the center of the shop are a small pan brake 19, a double sander 20, a power driven shear 21; press brake 22; a bench 23 adjacent to the brake; and another bench with edging, turning, beading, and crimping machines mounted on it. These machines and tools are centrally located so that both the sheet metal and ventilating departments can have easy access to them. The shear at 27 is used almost exclu-

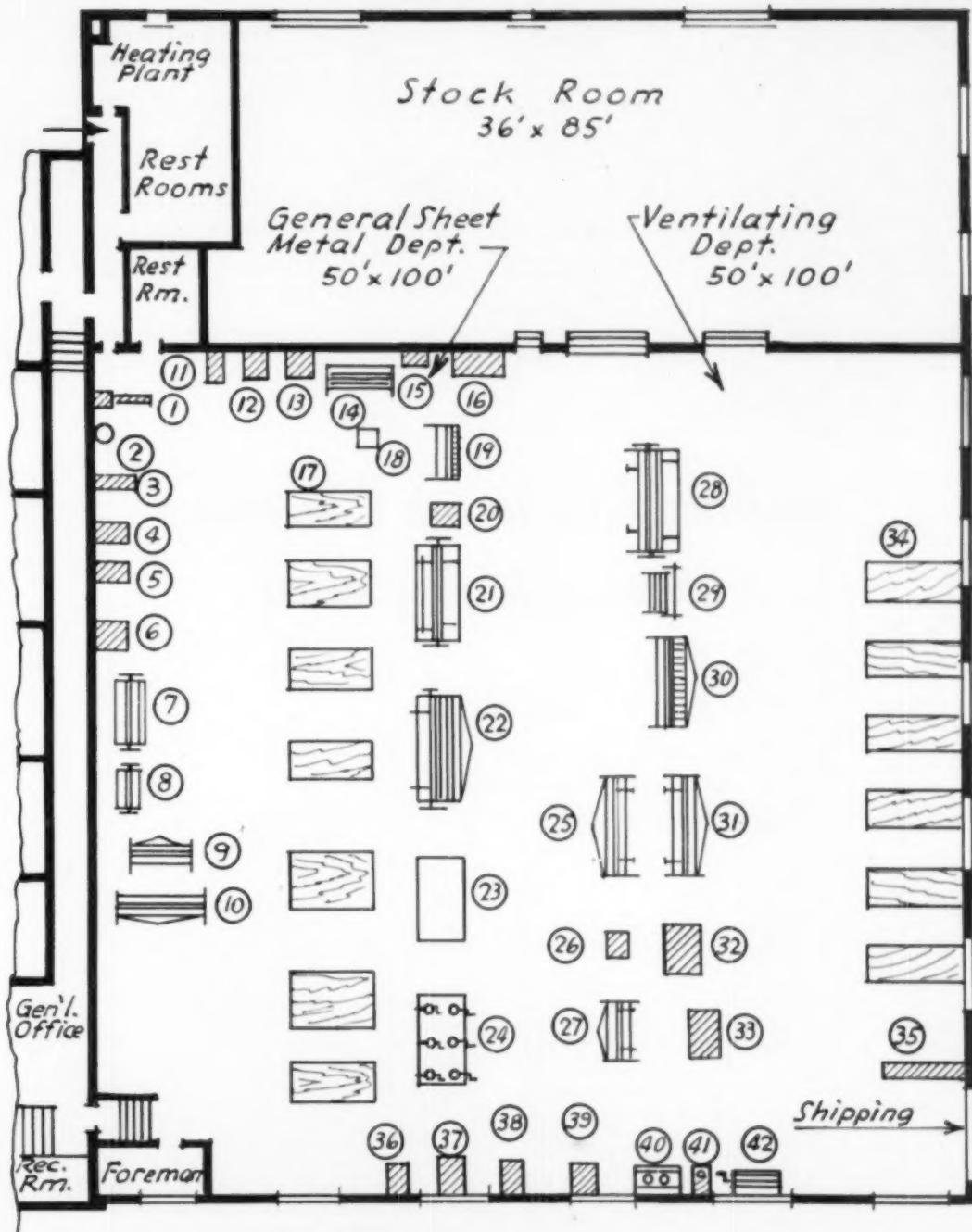
sively by the sheet metal department, however. The hand brakes 25 and 27 are also placed for use by both departments. The edger 26 is similarly placed.

Ventilating Shop

The ventilating department uses the power shear 28, the brake 29, the pan brake 30, the brake 31, the electric shears 32, and the Pittsburgh lock forming machine 33. These are aligned in a straight row which leaves 12 ft passage between the machines and the benches 34. The grooving bar 35 can also be used by the sheet metal department, without interference. Along the front wall of the shop are located a power crimping machine 36; rotary punch 37; spot welder 38; small spot welder 39; gang notching machine 40; small electric punch 41; and hand roll former. Over 600 sq ft of floor area remains between the shear, the right wall, the wall separating the shop from the stock room, and the first bench in the row. These benches receive daylight through four windows, each 8 ft wide, in the right hand wall. Two windows open into the 600 sq ft area in which the ventilating department can keep products in process and do assembly work.

There is a 14 ft passage between the large machines 21 and 22 at the left and 28 at the right. Material being processed through the brake and shear can move freely. The area between the press brakes and the benches allows handling the largest sheets during production. Brakes 9 and 10 are not permanently mounted and can be turned about if that should seem necessary. The only crowding of machines occurs between the roll former 14, the sander and other machines located in that immediate area. In the general run of work these machines are seldom operated at the same time, however. Where large and constantly flow-

New Gichner Shop



ing materials and parts are in process or where sub-assembly and final assembly is performed, ample space has been provided.

Plans for Expansion

The stock room might seem disproportionately large since finished products are not to be stored therein. The two production departments in this company do mostly custom work which is delivered for installation as soon as the shop work is completed. The entire building was planned for possible expansion. In that case the wall separating the stock room could be moved further back, giving more space for the shop.

The building houses a series of offices which could also be utilized for additional shop area.

It is apparent that in a shop measuring 100 by 100 ft and equipped as described, a large number of men can work in each department without interfering with each other's operation. The large benches with plenty of room for product handling and free areas for assembly and product movement, should make this a first rate shop in the sheet metal and ventilating industry. It could well be imitated by other planners of new shops

or shops in need of a pattern for reorganization.

At first glance it would seem that this shop does not follow the production system described in **AMERICAN ARTISAN** in a recent series by the author. On closer examination we find that materials are stored for use in the vicinity of the shears with the forming of blanks following in sequence. Preparation of blanks for forming is done on nearby benches. Interior blanking and some exterior blanking, which must be done in the smaller machines, is located for the convenience of men working in both departments. Fitting of the parts for sub-assembly takes place on the benches as does fastening, which is mostly seaming or riveting. The spot welders are located for accessibility as well as to be out of the way of other operations. There is no abrasive finishing except that done in the sanders, which are located near the spot welder. Assemblies are completed in the respective departments with easy access to the shipping department. Thus the system is present in the respect that the plan is for a sequence of operations which can be completed without interference.

Soldering — Convenient & Economical Means of Joining Metals

RICK MANSELL

Los Angeles, Calif.

Modern production demands have made it necessary to replace soldering with other processes for some applications. For many purposes soldering remains the most efficient and economical.

SOLDERING belongs to the family of joining operations in which a fusion of metal is employed. It was the father of such related processes as brazing and welding.

Soldering and brazing are adhesion methods and rely for their permanency upon the adhesion of a fused alloy to the base metals being joined. In the welding operation an actual fusion of the base metal itself occurs and is responsible for the higher strength of the joint. The surfaces of the metals being joined are heated to a state of fusion or plasticity.

Soldering is done at temperatures usually below 700 F. There is very little alloying between the solder used and the surfaces which are joined. Brazing takes place at higher temperatures and the brazing alloys

used are generally harder than those encountered in soldering. Braze joints are stronger and there is a partial alloying with the parent metal.

Soft Soldering

When the term soldering is used, the soft soldering operation is implied and the alloys used are fusible at temperatures below the red heat range. On the other hand in hard soldering, which is also referred to as silver soldering or silver brazing, the alloy used fuses at temperatures above 1200 F.

Soft soldering is used for joining tin, brass, copper, and other non-ferrous metals having low melting points. Hard soldering was originally devised for joining gold and silver but its use has expanded to include other non-ferrous metals. Special fluxes and solders have been developed to suit most metals.

Photos from Linde Air Products Co.

Use of a small torch for soldering increases the number of possible applications of the process.



The temperature at which the solder first begins to fuse is called the melting point. With the continued application of heat the solder reaches a temperature called the flowing point, when it melts completely. It must then be heated above the flowing point or it will not flow properly. When the soldering alloy is thoroughly melted it wets the surface of the parts and flows into the joint by capillary action. Some solders melt and flow at the same temperature. These are called eutectic solders and are satisfactory for making bead joints, but are not suitable for running into lap joints.

To insure a good joint the surfaces of the metal components must reach the temperature of the molten

solder. Copper soldering irons, blow torches, electric hot plates, and resistance and induction heating methods have all been used. The soldering iron may be heated either in a small gas furnace or by a built-in electric heating element.

Control of soldering temperature is very important. If it is too low, a weak joint may be produced because of entrapped flux inclusions. On the other hand, the use of high temperatures increases the rate of oxidation of metal surfaces and of the solder. It also causes a rapid breakdown of the organic fluxes.

An oxy-acetylene flame is too hot for soft soldering. A mixture of oxygen with city gas or with natural gas is used in the welding blowpipe. An air-acetylene torch with a single hose connection is favored by electricians, plumbers, and sheet metal workers, because they can easily carry the small portable cylinders to the job. This torch has both open flame tips and soldering iron tips.

Types of Solder

Many different types of solder are available for many purposes. These include lead-silver, tin-antimony, and tin-cadmium. The greatest use is made of the tin-lead alloys. When tin is added to lead in increasing quantities, it causes a lowering of the melting point. When the compound contains 72 per cent tin the resulting material is a eutectic alloy which has maximum fusability. The presence of impurities or additions may be responsible for a further decrease in the melting point but these generally are detrimental to the properties of the solder. They may induce brittleness or increase the electrical resistance.

Pure lead, pure tin, and the eutectic alloy combination all have a very definite melting point temperature. At this temperature they yield a fluid melt which solidifies rapidly on cooling and does not spread. All the other alloy combinations go through a pasty stage.



Many soldering applications in production work offer employment opportunities for women.



Repair work on small parts is often accomplished most easily by the use of solder.

A solder with 30-40 per cent tin is particularly mushy and hence is commonly used to make wipe joints. A 45 per cent tin, 55 per cent lead solder has the best spreading qualities.

The physical properties of the solder vary with the composition. The high lead solders are ductile but have a lower tensile strength. As more tin is added the solder tends to become increasingly brittle. The most popular compound is the 50/50 alloy (melting at 360-420 F), but where the temperature requirements are critical, a 60 per cent tin solder is used. A low grade solder used for filling dents in automobile bodies may contain 25 per cent tin. A typical wiping solder for joining lead pipes and cable sheathing consists of 37.5 per cent tin, 60 per cent lead, and 2.5 per cent antimony.

The tin content is stated first in specifying a lead tin solder. The percentages are a very important consideration when changing from one type to another. When a coppersmith changes from a 50/50 solder to a 30/70 type he must heat the alloy 65 F higher to make it flow, although both solders melt at the same temperature.

Solders containing 40 per cent tin or less can be improved for use on non-ferrous metals by adding 2.5 per cent antimony. It is generally not desirable to add bismuth, because the resulting alloy has low strength and is difficult to flux. A solder mixture of 95 per cent lead and 5 per cent silver is very satisfactory for use on threaded pipe fittings of Everdur 1010, whereas the tin-lead solders are not suited for this purpose.

Soldering Aluminum

Tin-lead alloys are not usually specified for joining aluminum and magnesium. For aluminum, a tin solder containing 15-20 per cent zinc is used. For magnesium soldering, a tin alloy with 28 per cent cadmium is popular. When soldering aluminum and magnesium there is a tendency for the resulting joint to be of poor strength and of low corrosion resistance, unless special precautions are taken. The manufacturers of these metals supply ample information about correct soldering practice.

As a general principle, the soldering alloy is designed to effect the required adhesion without requiring any alloying with the surfaces being joined. Some alloying does take place and is considered desirable. Excessive

alloying may be detrimental if it exerts a definite change in the melting point of the solder and otherwise affects the soldering properties.

No matter what type of solder is selected for a job, it must be free from oxides and dross. The surfaces to be joined must be sufficiently clean to permit a thorough wetting. Non-metallic coatings on the surface such as sulphides, oxides, and carbonates prevent the adhesion of the solder. To remove these contaminants and permit a tinning of the metal, a flux is necessary. The flux removes the surface compounds and shields the clean metal from the air and thus retards formation of any oxide film.

Different Fluxes

There are a number of different fluxes available and these may be either inorganic or organic in nature. The inorganic salt type is prepared by dissolving zinc, ammonium or magnesium chlorides in water to form an aqueous solution which is slightly acid in reaction. When these solutions are emulsified, soldering pastes are produced. These salt type fluxes are used for soldering iron and steel, nickel, copper and their alloys.

Some shops prepare their own flux by adding an excess of zinc to muriatic (hydrochloric) acid to form zinc chloride. One oz of zinc chloride is used for each four oz of water, but the strength of this type of flux is unpredictable. It is better to purchase a prepared flux containing a wetting agent which will cause the solder film to thin out and cover a larger area. While these wetting agents or penetrants may not be necessary for the 50/50 or the 60/40 solders, they are advisable for the lower tin solders. This is especially true for long joints on copper or for all joints on brass and bronze.

Zinc chloride mixtures are used for most of the non-ferrous metals. For brasses and bronzes containing aluminum, silicon, and manganese, a mixed flux containing zinc chloride with hydrofluoric acid is recommended. These chloride fluxes always present the danger of corrosion.

Preventing Oxidation

Organic acids such as stearic acid, oleic, and benzoic acids are particularly useful in preventing oxidation on surfaces which are already clean and free from oxides. They readily decompose at high temperatures and are used only within a narrow temperature range. Organic bases such as aniline and urea are less stable at the soldering temperatures. Their decomposition products are nauseating and soldering must be done under a hood.

Residues from organic acid and base type fluxes are electrically conductive and are not recommended for fine electrical work. The safest flux to use in electrical connections and radio work is rosin, since it leaves a non-conductive residue. Solutions of rosin in alcohol or turpentine may be used or the rosin may be cored in the solder. Rosin flux is non-corrosive and is used on clean surfaces of copperbase alloys, as well as on the tin or cadmium plated surfaces of iron or nickel alloys.

Soft solder is non-corrosive and is used extensively

(Please turn to page 176)



For low cost per year of service, you can't beat a copper roof like this one on the Northway Christian Church, Dallas, Texas. Architect: Tatum & Quade; General Contractor: Miller & Norton; Sheet Metal Contractor: Mustang Sheet Metal & Mfg. Co.; Revere Distributor: Moncrief-Lenoir Mfg. Co.—All of Dallas, Texas.

Dollar for Dollar, There Is No Substitute for a

Copper Roof!

● Whenever you want lasting sheet metal construction, there is no substitute for copper. Because copper—beyond any other material commonly used for roofing, gutters and flashing—has proved its ability to give longer service per dollar of cost when properly designed and installed.

These statements are backed by facts and figures developed by intensive research and by case histories of well-known buildings. No other sheet metal construction material can support so strong a claim.

To make certain of correct design and take advantage of proved installation techniques, it will pay you to use the new design and installation data developed by the Revere Research Laboratories. You'll find these data in Revere's book, "Copper and Common Sense," an authoritative manual of sheet copper construction that has been widely distributed to architects and sheet metal contractors. There is probably a copy in your files. Be sure to refer to

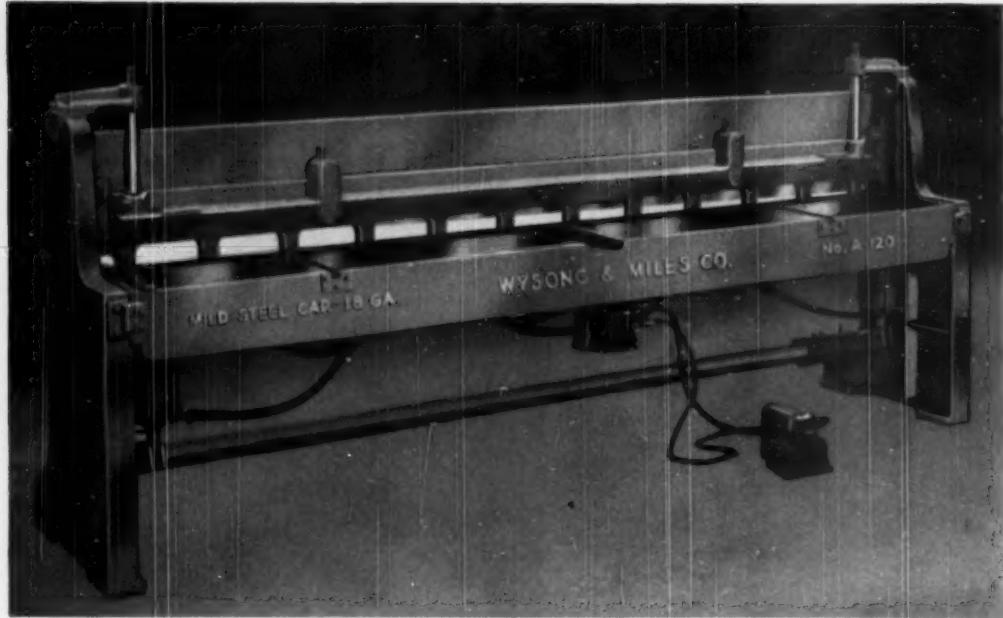
it as your guide to finer and more durable sheet copper construction.

Revere sheet and roll copper and other Revere quality materials are available from leading distributors throughout the United States. A Revere Technical Adviser will always be glad to consult with you without obligation.

REVERE
COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801
230 Park Avenue, New York 17, New York

Mills: Baltimore, Md.; Chicago, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Rome, N. Y.—Sales Offices in Principal Cities. Distributors Everywhere.



Wysong and Miles No. A-120 Air Power. Capacity, 10 feet, 18 gauge, mild steel

LET *Air Power* CUT YOUR SHEARING COSTS

To provide fast, accurate and inexpensive power shearing, Wysong and Miles has introduced a complete line of Air Power Squaring Shears in cutting lengths from 36 inches through 10 feet.

Low in Cost . . . The initial cost of Air Power Squaring Shears is low. They require no expensive clutches, drive shafts, gears, brakes and heavy duty motors as part of the initial cost. In operation, the normal wear and replacement on such parts is also eliminated.

Inexpensive to Operate . . . Continuous shearing at a fast rate requires only 75 to 85 pounds of cylinder air pressure. A single stage, 1 to 2 H.P. air compressor provides sufficient power for smaller shears. The 8 and 10 foot shears are equipped with 2 cylinders and require a compressor of approximately 3 H.P. The Wysong and Miles Air Power Shears are compactly built and free of overhanging parts. They require a minimum of floor space.

Hi-Tensile Castings . . . Bed, end-frames, knife-bar and holdown are rigid, one-piece castings. Because deflection of castings is 1/5 to 1/4 that of steel weldments, these accurately machined and fitted Hi-Tensile castings maintain accurate alignment. They resist wear and insure a long life of accurate, straight-line cutting without twist, spring or deflection.

Fast, Accurate Shearing . . . Accurate gauges—front, side and back—plus embedded adjustable stainless steel scale make positioning of stock quick, easy and accurate. The massive knife-bar travels in accurately machined take-up gibs on the end frames. The knife cuts an accurate straight line.

Automatic Holdown . . . All Air Power Shears are equipped with an automatic, spring-actuated hold down that descends with the knife-bar. Sheets are firmly clamped to prevent creeping. Holdown feet have large, smoothly machined bearing surfaces to prevent marring of sheets. The automatic holdown saves operator time and effort.

Easy to Operate . . . Simply depress the foot air-valve treadle to make a cut. Release to return the knife-bar and holdown to the top position. The foot treadle can be moved anywhere in front of the machine for operator convenience.

Sizes . . . Cutting lengths of 36, 42, 52 and 72 inches in 16 gauge capacity; cutting lengths of 8 and 10 feet in 18 gauge capacity. The 6, 8 and 10 foot shears are equipped with multiple edge blades, that can be turned and each cutting edge used before sharpening.

Air Power Shears—mean fast, accurate production with less work. They provide inexpensive automatic shearing for all lighter gauge metals. Each shear is thoroughly tested before leaving the factory and shipped fully equipped and ready for continuous capacity operation when connected with an air line. Large sheet metal shops find they make an economical auxiliary shear to save using a large motor driven shear on light metals.

See Your Dealer or write direct to the Wysong and Miles factory for full information and specifications.

WYSONG and MILES CO.

GREENSBORO, NORTH CAROLINA



Minnesota

A summer convention meeting is to be held at Bemidji, Minn., by the Sheet Metal & Roofing Contractors Association of Minnesota on June 15-17. Birchmont Resort will be the scene of this meeting.

Purpose of the gathering is to lay the groundwork for the enactment of a license law for the state of Minnesota, similar to the plumbing laws now in force in many states. Another phase of the meeting will be a discussion about promoting acceptance of the Code of Trade Practices developed by the Sheet Metal Contractors' National Association.

The Minnesota group is planning to cooperate in every way possible with the newly formed Minnesota Association of Consulting Engineers. This new association was founded to promote a better understanding between consulting engineers in the state with other organizations in the engineering, architectural, and construction fields.

A moderate price has been set for the three day outing at Bemidji. Room, meals and entertainment are included for \$25.00 per person for members and \$35.00 per person for non-members.

Michigan

N. Jay Biddle, secretary of the Michigan Sheet Metal, Roofing, Heating, and Air Conditioning Association, acted as chairman of the judging committee for the recent contest held by the Detroit Junior Achievement companies. Other judges were: Howard G. Clark, J. S. Clark Co.; and Everett Bush, Charles Sexauer Roofing Co.



Left to right, Howard G. Clark, Everett Bush, and N. J. Biddle.

Junior Achievement is a national, non-profit public relations program sponsored by industry to give young people between the ages of 15 and 21 an opportunity

to learn about the free enterprise system by operating a miniature free enterprise of their own.

To participate in the contest the companies were required to furnish a sample of their product and a detailed statement of their operations. The judges selected Rainbow Products Co., manufacturer of earrings as the Detroit winner. This entry was then forwarded to the national contest.

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Coming Events

June 15—Stoker Manufacturers Association, Annual Meeting. La Salle Hotel, Chicago, Ill. Marc Bluth, Executive Secretary, 307 N. Michigan Ave., Chicago.

June 15-17—Sheet Metal and Roofing Contractors Association of Minnesota, Summer Meeting. Birchmont Resort, Bemidji, Minn. Harry Quade, Convention Chairman, 715 S. Eighth St., Minneapolis.

June 16-17—Carolinias Roofing and Sheet Metal Contractors Association, Annual Convention. Ocean Forest Hotel, Myrtle Beach, S. C.

June 16-18—National Heating Wholesalers' Association, Summer Meeting. French Lick Springs Hotel, French Lick, Ind. E. L. Wyman, Executive Secretary, 609 Union Commerce Building, Cleveland 14, Ohio.

June 18-21—American Society of Heating & Ventilating Engineers, Semi-Annual Meeting. Royal Muskoka Hotel, Ontario, Canada. A. V. Hutchinson, Secretary, 51 Madison Ave., New York, N. Y.

June 19-22—Oil Heat Institute of New England, New England's Oil Heat Exposition. Statler Hotel, Boston, Mass. Fred Beckwith, 839 Beacon St., Boston.

October 2-6—American Gas Association, 32nd Annual Convention, Atlantic City, N. J. H. Carl Wolf, Managing Director, 420 Lexington Ave., New York 17, N. Y.

October 2-6—Gas Appliance Manufacturers Association, Exposition of Gas Appliances and Equipment, Convention Hall, Atlantic City, N. J. Harold Massey, 60 E. 42nd St., New York 17, N. Y.

December 5-6—National Warm Air Heating and Air Conditioning Association, 37th Annual Convention. Hotel Statler, St. Louis, Mo. George Boedener, Managing Director, 145 Public Square, Cleveland, Ohio.

Oil Heat Institute Meets at Philadelphia Sets 1950 Sales Goal of 700,000 Units



Managing Director Ralph Becker

Record-breaking attendance at OHI meeting indicates strong interest in oil heating. President A. T. Atwill sets 1950 goal and announces appointment of new managing director of the Institute. Mr. Becker, new managing director promises continuation and expansion of all OHI programs aimed at serving the oil heat industry.

PHILADELPHIA was the scene of the National Oil Heat Exposition and the 27th annual convention of the Oil Heat Institute of America. The exposition was located in the Commercial Museum, while the OHI meetings and business sessions were held at the Benjamin Franklin Hotel. The OHI convention ran from April 24th to 27th. The exposition was also open on Friday, April 28.

Engineering Day

Tuesday, April 25th, was designated Engineering Day and the first general meeting was held in the afternoon. This engineering session was under the chairmanship of L. N. Hunter, chairman, OHI Engineering Committee.

First speaker of the session was G. E. Evans, Esso Standard Oil Co., who stated that final finishing given fuel oils before they go to the trade may have more effect on their performance than the distillation and cracking processes producing them.

Adjusting Burners

Next speaker was H. K. Ricker, Gilbert & Barker Mfg. Co., who spoke on Adjusting Burners for Economy in 1950. His presentation was a visual one developed by his company for training salesmen. The fundamental principle of the presentation is to represent a quantity of fuel oil as a cube and then use other cubes of varying sizes to indicate the elements which must be present for complete combustion.

Combustion Chambers

Carter Hamilton, Jr., A. P. Green Firebrick Co., spoke on Refractory Combustion Chambers. He discussed the various types of refractory chambers and explained their importance in securing complete combustion, a quiet flame, and high efficiency.

Peter Payson, Crucible Steel Co. of America, told of the difficulties encountered by the manufacturers in producing stainless steel combustion chambers of high quality and durability. Describing the effects of tests on materials of varying compositions he gave a formula for an ideal chamber constructed of this material.

C. H. Neiman, York-Shipley, Inc., reported on the valuable data secured from the OHI Combustion Reference Test Unit.

In conclusion, G. T. Kaufman, technical secretary of the OHI, reported on the Handbook of Oil Burning.

Industry Day

Wednesday, April 26th, was named Industry Day and the morning session was under the direction of A. T. Atwill, president, OHI. Initial speaker of the session was Stanley Hope, Esso Standard Oil Co. His address was titled The Challenge Is Here.

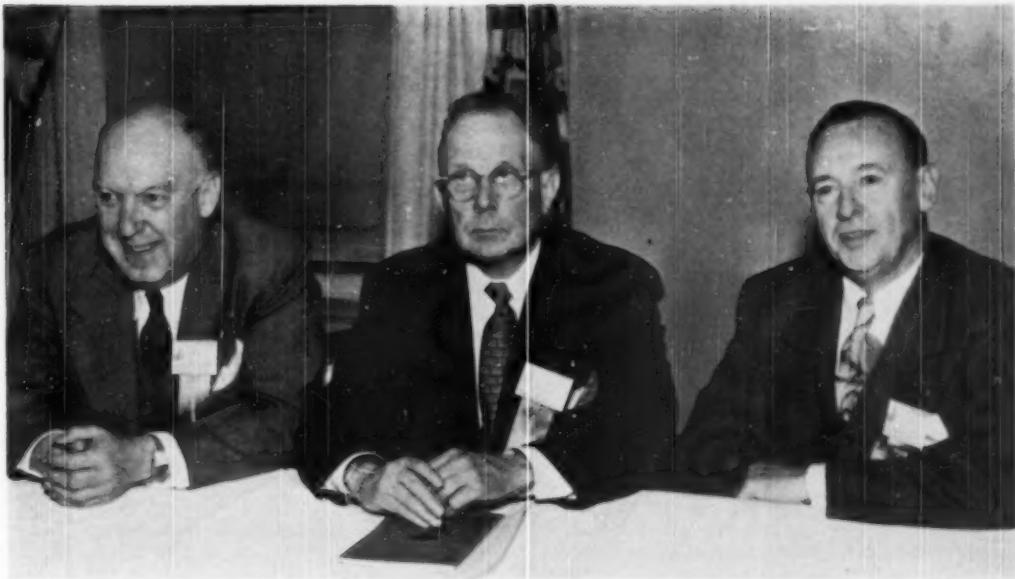
Business Is Healthy

Mr. Hope opened his talk with the opinion that the oil situation is good and business is healthy. But the question in many minds is whether it will remain good. The oil industry has no intention of standing idly by while there is a possibility of a competing fuel affecting the market.

After detailing oil heat's many advantages he continued: "We can truly say that oil is the ideal fuel for domestic heating. Our major problem is to make every prospect for automatic heating conscious of this fact. Perhaps we are facing the need of an industry-wide advertising program."

Competitive Fuels

Robert Gray, editor, *Fueloil & Oil Heat*, spoke on the competitive fuel situation. He said that the inroads made by natural gas on oil heating sales will be temporary and that future sales of oil heating will be as



Reelected officers of the Oil Heat Institute of America: Vice President C. S. Dieter, Bethlehem, Penn.; President A. T. Atwill, Chicago, Ill.; Vice President J. W. Owens, Chicago, Ill.

good as at present. He recommended the improvement of oil heat's service to its customers as the primary way to meet the threat of gas heat.

L. A. Casier, OHI public relations counsel, said that the sales relations in the oil heat industry are in sad shape. Indicating that 868,000 units should be sold in 1950 if sales relations were what they should be, he questioned how close sales would come to this goal. He also said that salesmen in the industry must improve their efficiency 20 per cent.

Thursday, April 27th, was Dealer Day at the convention. Opening speaker was Arnold Michelson, Minneapolis-Honeywell Regulator Co.

Modernization Prospects

Mr. Michelson told the dealers that the biggest field for oil heat is the oldest field. He referred to the 23 million homes in this country that are more than 30 years old. He pointed out the possibility of purchasing an old home and modernizing it, including an oil fired automatic heating system, and thus obtaining a modern comfortable home at a lower cost than by building one.

Lack of Standards

G. T. Kaufman, OHI technical secretary, spoke on standards and rules. "Our situation with respect to standards is confused and chaotic," said Mr. Kaufman. He stated that the entire industry suffers "because we did not keep the situation under our control." He suggested "a cooperative, industry-wide standards program" and ventured the opinion that machinery for setting up a program exists in the OHI and should be carried forward.

C. W. Whitney, Petrol Terminal Corp., emphasized the need for better installation and service cost rec-

ords if the best possible installations are to be secured at the lowest possible costs. Installation cost charts prepared by Mr. Whitney were passed out to the audience so they could compare their own costs with the chart.

Managing Salesmen

T. A. Crawford, Timken Silent Automatic Division, spoke on Managing Salesmen in 1950. He went into detail in the matter of recruiting, selecting, and training of sales personnel. Careful selection of personnel, constant supervision, real sales incentive, continuous training, and adequate sales records are the responsibilities of sales management. They must be accepted



F. C. Haab, chairman,
Distribution Division



P. K. Adams, chairman,
Accessory Division

if sufficient volume for satisfying profits is to be assured.

After the last speech a forum was set up to answer questions from the audience.

Thursday evening the convention closed with the annual banquet and entertainment. W. A. Matheson, former OHI president, presented the Aladdin Lamp award for service to the industry to A. T. Atwill, reelected president of OHI.

Successful Exhibit of Machinery & Equipment

Marks Illinois Convention

THE 36th annual convention of the Sheet Metal Contractors Associations of Illinois featured a trade exhibit on a scale seldom attempted by a state association. Springfield, Ill., was the scene of the meeting with exhibits and sessions located in the State Armory Building on April 27-29.

National Association

First session of the convention was called to order by E. H. Schmidt, Edwardsville, president of the association, on Thursday afternoon, April 27th. After the appointment of committees, the meeting was turned over to J. D. Wilder, Elgin, Ill., executive secretary of the Sheet Metal Contractors' National Association. Mr. Wilder described the many activities of his association in behalf of the industry and urged all those in attendance to support all association work. He said that it is only by having a system of associations, local to national, that are strong and progressive that the best interests of all can be protected. It seems that nearly every group in the country is organized to further its own interests and any group which neglects to organize will be brushed aside. Mr. Wilder also advanced the idea of scheduling regional conventions including several states, in place of the state conventions which have been the rule in the industry.

Following Mr. Wilder's talk, a motion picture film was presented which graphically described the protective oxide coating which makes stainless steel stainless.

In the evening a buffet supper was held for the convention, after which the customary stag show took place.

Friday morning, April 28th, was given over to registration and visiting the exhibits in the Armory.

Profits

The meeting for the day was called to order at 11 a.m. by President Schmidt. First speaker was B. B. Barker, Inland Steel Products Co., who talked on the subject of Profits and Pricing.

Mr. Barker began by telling his audience just how important it is for the contractor to have a price schedule that is fair and equitable. He must get a good return for his products and services if he is to stay in business. His prices must be fair to his customers and meet competing prices. Unless these conditions are met the business is due for trouble sooner or later.

The speaker went into the subject of price cutting in relation to profits. He presented an excellent chart which clearly showed the danger of price cuts. He told how to determine the selling price of any product according to the profit percentage desired. Then he

illustrated how a cut in the selling price had a serious effect on the profit percentage.

Next speaker was Paul Halpin of the Springfield Social Security office. He gave a brief history of the aims and purposes of the Social Security Act. He said that the legislation had relieved many hardships but that more could be done by an increase in payments and coverage. In this regard, he told some of the provisions contained in H. R. 6000, the bill expanding the Social Security system, which is up for consideration.

B. R. Harper, assistant director of the Springfield Federal Housing Administration office, followed on the program. He presented up to date figures on the tremendous volume of residential construction. New records have been set in the first months of 1950 and the outlook for the rest of the year is good.

For those who might not be completely familiar with it, he explained the functions of the FHA. He said that its principal purpose is to encourage the building of enough dwelling units for all those who need them. Mr. Harper also described some of the important provisions of the National Housing Act.

Shop Costs

T. A. Johansen, Chicago, Ill., had a topic which proved to be of vital interest to all. He spoke on Shop Equipment and Operating Costs.

He began with the Pittsburgh lock forming machine, one of the most useful tools any sheet metal shop can own. He indicated that the addition of extra rolls can increase the versatility of this machine considerably. The use of a power press for the production of elbow cheeks was described as an application of machinery which could result in great savings over the years. The comparison in time of manufacture of elbow cheeks by manual labor and by machine is quite startling.

Multiple notching machines were mentioned as a means of reducing costs on production jobs. Mr. Johansen pointed out that the important thing about having sheet metal machinery in the shop is to make full use of all its potentialities. He said that wherever a machine can be used efficiently, the result will be an ultimate saving. An example of this is the use of an air hammer for closing Pittsburgh locks. The time saved on this operation will pay for the equipment in short order.

Another convenient tool around the shop is the table recently developed on which hand machines can be mounted and driven by a central power source. In conclusion, Mr. Johansen said that every mechanic in the shop should have a full complement of tools. If he has these tools and keeps them in good order he will save time for himself and his employer. Another sug-



B. B. Barker

T. A. Johansen

O. W. Kothe

gestion was that the contractor lay in a supply of the common sheet metal hand tools for the convenience of his men.

At the conclusion of the meeting door prizes were awarded and the afternoon was left free for visiting the exhibits.

Machinery Clinic

Saturday morning, April 29th, the meeting was called to order to hear a Machinery Clinic with O. W. Kothe, St. Louis, as moderator.

Mr. Kothe discussed the trend toward more production work in the modern sheet metal shop and said that this trend increased the demand for efficient machinery. With the expansion of production or multiple work, it becomes possible to apply automatic presses that use the same dies over and over again. The result is a lower unit cost than found in the custom type of work in which only one or a few pieces are made.

Manufacturers Speak

As a part of the clinic, the manufacturers who had equipment on display in the Armory were requested to give a brief description of their equipment and how it fitted into the work of the heating and sheet metal contractor.

Sales Clinic

Next on the program was a Sales Clinic conducted by Ed Carter, editor, *Snips* magazine. This clinic was set up as a forum on advertising and sales promotion for the heating and sheet metal contractor.

Lou Reining, Chicago, Ill., gave a talk on the merchandising of accessories in the heating field. Automatic humidifiers were a principal example of this type of promotion. The speaker described some effective approaches which have been developed for selling these products.

R. L. Tippet, Waukegan heating contractor, told the meeting how he plans a year round campaign of advertising. Slides were used to show the advertisements and promotion pieces that are included in this

campaign. One of the most profitable promotions ever undertaken was the construction of a sheet metal figure which is entered in any parades or celebrations held in the vicinity.

Shop Helps Sell

Rudy Guenther, Chicago, Ill., told of the advertising which his firm does, both for his retail heating department and ventilator manufacturing department. He finds that little things, like the use of a seal telling how old the company is, are effective because they increase the confidence of the people in the firm.

Mr. Guenther showed pictures of his shop before and after its recent modernization. The front was brought up to date with the use of great expanses of glass and stainless steel trim and moulding. He has found that this has been a worthwhile investment. People come in to look at heating equipment and say they were so impressed with the front of the building they had to see what the company itself was like.

A Planned Program

Charles Bennett, Chicago, was the last speaker of the forum. He presented the comprehensive plan for promotion and sales that is followed by his company. All phases of this program are mapped out in detail and decisions made on the budget for each segment. Mr. Bennett brought out the necessity for careful follow-up on all inquiries. When money is spent to secure inquiries from prospects, those inquiries should be properly handled.

Continuity Helps

Mr. Carter concluded the forum by again emphasizing the importance to the contractor of a promotional program that has design and continuity. It is not sufficient to advertise as the mood strikes. The advertising should be part of a planned campaign which is aimed at a definite object or goal.

The association then heard the reports of committees and the officers for the coming year were elected.

Saturday evening the banquet marked the official close of the convention.

Sheet Metal Contractors' National Assn. Cincinnati Meeting Holds Forums Packed with Interest

CINCINNATI, Ohio was the locale of the 1950 convention of the Sheet Metal Contractors' National Association. Held in the Netherland Plaza Hotel the meeting packed three days, May 8-10, with information and entertainment.

President Philip Olmen, Chicago, called the group to order on Monday morning, May 8. Committees were appointed to function during the convention and the reports of the president, treasurer and secretary were heard.

Monday afternoon the Labor Relations Forum was held with W. A. Kuechenberg, chairman of the Labor Relations committee, presiding.

Monday evening the convention delegates traveled over the river to Lookout House, Newport, Ky., for a Kentucky dinner.

Forums Meet

Tuesday was designated Forums Day and three forums were conducted simultaneously.

The warm air heating forum was under the direction of Dee Cramer, Flint, Mich., who is chairman of the warm air heating committee of the association.

Mr. Cramer reported on the status of the heating ordinance developed by the association and said that the revised, second edition of the ordinance has been printed and is available. Richard Friday, Rochester, N. Y., reported on the subject of compensation insurance for furnace installation work. He recommended that any contractors present who thought the rates they were paying were too high call in insurance companies to advise them. The rate should be in proportion to the risk involved, but not higher.

The architectural sheet metal forum was conducted by Wm. J. Perkins, chairman of that committee of the association. Most important topic was the announcement of the manual compiled from Standard Practice in Sheet Metal Work. The first manual includes descriptions and specifications of Gutters, Conductors, and Conductor Heads. The group then discussed the outline for the second manual. This manual will take up flashings and will be in preparation for some time.

Frank Kramer, Milwaukee, Wis., took over the leadership of the apprentice training forum after H. R. Bostrum was suddenly taken ill. The principal subject was the 1951 Apprentice award. A general discussion of the operation of joint apprentice training committees occupied most of the time. Plans for the stimulation of training were proposed and analyzed by the group.

The convention reconvened for the luncheon at noon

on Tuesday. The nominating committee presented its slate of officers to the group after the meal. Featured speaker was Otto F. Christenson, executive vice president, Minnesota Employers' Association. His talk was called Capitalism Under Yokum's Moon and proved to be a hard-hitting criticism of the present fiscal policies pursued by the administration. He expressed the belief that it is very important for all businessmen who believe in free enterprise to fight for it now and not allow all liberties to be stolen from us unheedingly.

In the afternoon, the warm air heating forum continued and two other forums were organized, a trade relations forum and one on industrial sheet metal.

Sales Methods

At the afternoon session of the warm air heating forum Dan Schmidlin, Toledo, Ohio, spoke on the sales methods that his company uses. In no uncertain terms he said that the warm air heating industry has almost forgotten how to sell. The need for salesmanship has been absent for so long that the real salesmen have lost their touch.

George Kalvog, Chicago, spoke on customer agreements. Considerable discussion was forthcoming on just what should be contained in the agreement offered to the customer to close the sale. General opinion was that the standard agreement developed by the association was quite adequate for most shops.

The group also went into the subject of lower wage rates for heating installation men. Most of the contractors present were having trouble securing some jobs because of the high labor cost.

At the conclusion of the forums the convention met in general session for a continuation of the labor relations clinic.

Tuesday evening was set aside for the grand banquet of the association. Lee Gillespie, Cincinnati, acted as master of ceremonies for the floor show that followed the dinner.

Wednesday morning another general session met with President Olmen presiding. New officers were

(Please turn to page 122)

Captions for Page 119

Left-hand column: W. A. Wiedemann, Kansas City, new president of the association; Wm. Kuechenberg, Chicago, chairman Labor Relations committee; Angelo Hoffman, Milwaukee; Angelo Hoffman and John Klatt, business agent for SMWIA, accept apprenticeship committee award from President Philip Olmen, Chicago.

Right-hand column: scenes at the annual banquet.



NASMD Discusses Steel Problems

THE 40TH SPRING MEETING of the National Association of Sheet Metal Distributors was held at the Hotel William Penn, Pittsburgh, Penn., May 10-12. The meeting was officially opened on Thursday morning, May 11th, by Ray P. Farrington, Philadelphia, president of the association. Next on the agenda was the report of the executive secretary, Thomas A. Fernley, Jr., also of Philadelphia.

First speaker was Bennett S. Chapple, Jr., U. S. Steel Corp. of Delaware, who analyzed the present situation in the steel industry. He discussed the recent investigation conducted by Representative Cellar for the purpose of determining need for revision of the anti-trust laws. Citing some charges made against his company, Mr. Chapple brought out the necessary facts to show the absurdity of these charges. In regard to the research activities of the steel industry he emphasized one point of considerable importance to all users of steel.

There has been great concern over present and future status of our iron ore supplies. The speaker said the program for utilizing low-grade taconite ores has been so successful that iron ore experts say our supply is assured for many years. This taconite is being brought to the U. S. from such remote points as Labrador and Venezuela.

Future Supply

Predicting the picture for the rest of the year, Mr. Chapple said that 10 million tons of steel had been lost through production stoppages and production schedules call for making up half that loss. His prediction was that general business would remain good, at least for the rest of the year. A possible damaging factor would be a sudden drop or readjustment in demand in the construction and automotive industries.

Next speaker was Malcolm E. Lambing, Peoples First National Bank & Trust Co., Pittsburgh. His topic was The Business Outlook. In order to make an analysis of the outlook for business in the imme-

diate future, the speaker returned to the economic picture for 1948 and 1949. He then made a comparison of the trends for the early part of this year with the records of the previous two years. The Department of Commerce figures cited showed the overall situation in 1949 was holding firm because of continuing individual expenditures and expanded Governmental purchases. These factors offset the reduction in industrial expenditures for plant, equipment, and inventories.

Examining all phases of the economy Mr. Lambing gave his opinion that the short term business outlook is good. However, he said that continuous support of high cost producers in every segment of our economy is taking away the self-adjusting of supply to price. This artificial condition could last for a number of years but its collapse could be violent.

Terne Plate

The afternoon session, again with President Farrington as chairman, opened with a talk on The Terne Plate Situation, by R. K. Follansbee, Follansbee Steel Corp. He began by making a survey of the entire metal roofing situation. In the opinion that his audience should be interested in metal roofing products he pointed out that the manufacturers of non-metallic roofing materials have captured a large part of the market.

Mr. Follansbee said, "Just about the time I was gathering notes for this talk I happened to look through the April issue of *Architectural Forum*. The whole issue is devoted to the subject of housing, with special stress on houses in the \$10,000-\$15,000 class. I was impressed by the fact that only two manufacturers of metal roofing products were advertisers in that issue. But I was more impressed with the fact that none of the houses illustrated was roofed with metal."

"That's very important, because most of the houses discussed and illustrated were of the low-pitch or flat-roof types which can be equipped most satisfactorily with

metal roofs. What types of materials have been used on these houses? I can assure you that the materials brought no profits to those distributors who are primarily concerned with sheet metal.

"But let's look at it from another angle—a sales angle we may be neglecting. Most of these houses were of the type being bought on a long term basis by GI's or others who made a small down payment and will pay the balance as rent over a period of many years. Yet we all know that the roofs on these houses will have to be replaced long before the final payment is made, which means refinancing. I think there are some good sales arguments mixed up in this dilemma."

He expressed the market picture in these words, "Our studies show that the principal use of terne metal is now for construction uses other than roofing—such as gutters, valleys, flashings, etc. This market is great at the present time because every house needs some metal and the great boom in housing is keeping us busy supplying terne metal for just that purpose."

Create Demand

"But we don't expect to have that situation with us always. We recognize that we must build a demand for terne metal for roofing purposes and our corporation's whole advertising and promotional program is designed to educate homeowners, home buyers and home builders on the advantages of this type of roofing. Unless we can supply the demand we create by this program we will be at a great disadvantage in the future."

He asked his audience to cooperate with his firm in showing the benefits of the application of terne metal roofing to the roofing contractor and in turn to the purchasing factors in the construction field.

Next speaker on the program was Dr. W. J. Reagan, Penn State College, who gave the meeting a comprehensive picture of the importance of all metals in our civiliza-

tion. All metals are necessary for daily life, for defense and for war. There are 70 metals classified as strategic and critical which the Government is now stockpiling. The advisability of the stockpiling program was brought out by our experiences in World War II. He discussed the discoveries of iron ore deposits in this hemisphere as well as new techniques with blast furnaces and open hearths. These new techniques will conserve our iron ore supplies.

Setting Up Pensions

Defining a pension as "the periodic payment of a fixed sum, in consideration of past services" the next speaker, Carl Tangeman, Columbus, Ohio, went on to tell of the various ways of setting up pension plans. He said that the way in which the pension plan is set up is largely dependent upon the size of the company. The larger the firm the greater its ability to handle the plan itself and keep costs at a minimum.

After a consideration of the customary methods of establishing pension plans, Mr. Tangeman recommended a profit sharing trust. This type of trust is established for the purpose of accumulating sufficient funds for the payment of pensions. The employees contribute a percentage of their earnings to the trust and the employer contributes a percentage of the profits from the business. If the company makes a reasonable profit each year, the pension problem is taken care of by the funds built up in the profit sharing trust.

Thursday evening the entire group attended a banquet in the hotel and enjoyed an address by Albert Rowswell, Pittsburgh.

Panel Discussion

At the meeting on Friday morning, May 12th, a panel discussion was presented which proved to be interesting and educational.

First speaker was Louis Demmler, Demmler Bros., Pittsburgh, Penn., who described the inventory control system installed by that firm about two years ago. He told of some of the benefits gained by the operation of the new system. They have the goods when the customer wants them. Backorders have been



R. K. Follansbee

reduced by 75 per cent. Orders are filled much more quickly and dealers pick up more orders because of this speed in handling. The close control has made it possible to reduce inventory approximately 20 per cent in dollar valuation and 15 to 20 per cent in number of items. Manufacturers check their shipments to Demmler more closely because they know an examination and count will be made when the shipment arrives. A saving has resulted from this phase of the system. The annual task of taking a physical inventory has been considerably simplified by the operation of the stock control system.

Summing up, Mr. Demmler said, "My predecessors operated with considerable success and without stock control for 87 years. But they were smarter men than I. I couldn't get along without it."

Transportation costs were discussed by Alexander Thomson.



B. S. Chapple

Tanner & Co., Indianapolis, Ind. He gave some of the figures for freight allowances his own firm had to make in 1949 and showed how important an item of business expense these allowances can be. He said that the present situation is distorted by the fact that any distributor is willing to pay almost any freight charges to get some steel. This has a tendency to make the allowances higher than they should be.

Liability Insurance

Roger K. Becker, Ohio Valley Hardware & Roofing Co., Evansville, Ind., spoke on Products Liability Insurance. He told of some cases of suits brought into court and how difficult it is to guard against these suits, even with insurance.

His company investigated the various products liability insurance policies available and came to the conclusion that they were all much too expensive. The risks attributable to the products sold by the distributor did not seem to warrant the expenditure of a premium that ranged as high as \$670 per \$1 million sales. The company then established a policy of determining the responsibility of the suppliers and manufacturers with which they deal. They consider this protection adequate.

Last speaker was Lee J. Haines, E. E. Souther Iron Co., St. Louis, Mo. His talk was on the pension plan which his company has in operation. Since the company is small it has carried its pensioners directly rather than by funding the pensions or setting up a trust. Payments equivalent to Social Security benefits are made to the workers who retire from Souther. Negotiations have been started with a local trust company with the thought of having the trust company take over the operation of the plan, if it continues to grow.

Friday afternoon, most of the association members took an inspection trip through the new Irvin Works of the Carnegie-Illinois Steel Corp. Said to be the newest and largest steel mill in the world, the distributors were particularly fascinated by the sight of gleaming galvanized steel emerging from the rolls in the galvanizing line. No samples were given out, however.

SMCNA Convention—

(From page 118)

elected and the reports of the committees of the association were heard.

Louis L. Narowetz, Chicago, gave his report on the National Joint Board for the Settlement of Jurisdictional Disputes and then introduced Robert Byron, president of the Sheet Metal Workers International Association.

Mr. Byron strongly advocated that the sheet metal contractor endeavor to secure all work that comes within the jurisdiction of the industry. He told of the important part that history plays in the settlement of disputes. If the sheet metal contractors have been doing a certain class of work that is a strong factor in establishing their right to the work.

At the session on Wednesday afternoon the winners of the 1950 Apprentice Contest were announced. First prize of \$200.00 was awarded to Aubrey J. Sutter, Grand Rapids, Mich.; second prize of \$125.00 to C. G. Gackstetter, So. St. Paul, Minn.; third prize of \$75.00 to Edward Sander, Houston, Tex. A special honorable mention award was made to C. Elgie, Vancouver, B. C., Canada.

Association Activities—

(From page 113)

Midwest Stoker Association

The annual summer outing and golf tournament of the Midwest Stoker Association will be held at Mt. Prospect Country Club, Mt. Prospect, Ill., on Friday, July 28, 1950. President F. H. Herndon has announced. Arrangements for this traditional event are in charge of the association's entertainment committee—Jack Nel, H. E. Honey and E. J. Worley.

Further announcements will be made when arrangements are completed.

Canadian Chapter—NWAH&ACA

Forty-one delegates were on hand at the Ottawa Technical & Vocational School for the fifth eastern Ontario *Indoor Comfort* warm air heating conference. Included in the attendance were three representatives of the Department of Veterans' Affairs and two repre-



Ottawa School

The Milwaukee area Sheet Metal Workers Joint Apprenticeship and Training Committee was awarded the plaque for making the greatest contribution to the training and guidance of apprentices in the sheet metal trade in 1949.

Colorado City, Colo. was selected as the site of the 1951 convention of the association.

1950 Officers

President W. A. Wiedenmann, Kansas City, Mo.
1st vice president E. B. Brown, Chicago, Ill.
2nd vice president M. J. Cutter, Cleveland, Ohio
3rd vice president A. A. Sabathne, Altoona, Penn.
Treasurer Carl M. Gundlach, Sandusky, Ohio

New Directors for 3 year term

G. C. Cummings Meriden, Conn.
H. Heyse Colorado City, Colo.
B. R. Lewis Louisville, Ky.
Earl DeLay Columbia, S. C.
Ray Pauley Mason City, Iowa replaced James Goff, Sr., Dallas, Tex.

sentatives from the Department of Lands and Forests, Fuels Division.

M. G. Dixon, architect for the V. L. A. program attended the first three days of the course and provided answers to questions which arose concerning the V. L. A. series of plans available for veterans' home building. The association office is presently preparing gravity warm air heating designs for plans in the series.

A. L. Acton was again chairman of the Ottawa school committee, assisted by Stan Bullis. Murray Bowman journeyed from Toronto to deliver the lecture on warm air controls.

Assisting Chapter engineer F. W. Taylor with the instructions was Morris Rozell, of associate member S. E. Rozell & Sons, Kitchener, Ontario.

Indiana

Latest issue of the News Bulletin of the Sheet Metal and Warm Air Heating Contractor's Association of Indiana contains a report on the warm air heating short course held at Purdue University in April. From all indications the course was a fine success and the decision to have another in 1951 has already been made.

The board of directors of the association held a meeting at Fort Wayne on March 31, with a good attendance of the officers. After the adjournment of the board meeting, the directors joined the group which had gathered for the first 1950 district meeting of the association. There were 177 contractors present and a fine dinner preceded an interesting address by Rex Paxton on Sales. Last event was a full color movie of a Canadian fishing and hunting trip.

The next district meeting of the association has been announced. It will take place at Seymour on July 14, at 8 p.m. The Elks Club will be the scene of the meeting and entertainment and refreshments are planned.

EQUIPMENT DEVELOPMENTS

Fuel Tank Signal Gauge... 97

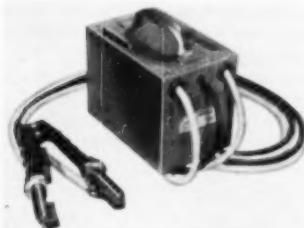
Outstanding gauge visibility is the keynote of the new 1950 model of Ventalarm Gauge. Clear white button indicator of the 4 in. high gauge travels up and down inside plastic tubing according to the level of oil in a tank. Big black figures on a white background make it easy to take a reading at a glance, even 10 ft away. Gauge adjusts at any angle.

Button-lift makes installation easy whether or not there is oil in the tank. Snap-by float arm is quickly adjusted for permanent operation in either direction.

Model comes in two sizes: VG-A, 2 x 1 $\frac{1}{4}$ in. and VG-B, 1 $\frac{1}{2}$ x 1 $\frac{1}{4}$ in. Available for 275 gal cellar tanks with depths of 22, 24, 27, 42, 44, and 47 in. Approved by UL.

Scully Signal Co., Cambridge, Mass.

Soldering Tool... 98



Portable soldering tool provides a fast, safe way to do all kinds of soldering at low cost.

Operating on the resistance heating principle, new tool speeds soldering because it provides instant heat—simply touching the work with the tool completes the secondary power circuit. Heating begins instantly; there is no pre-heating, no waiting.

Heat is concentrated at the point of contact, minimizing danger of



(Use Coupon on This Page)

melting nearby joints or burning other parts.

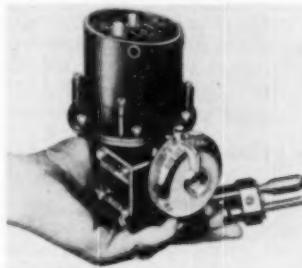
Equipment is entirely safe; there is no open fire hazard. All parts are fully insulated. Current is reduced to a harmless low voltage.

Ideal Industries, Inc., Sycamore, Ill.

Gas Furnace Control... 99

Gasapack Model 54, a new gas furnace and heater control, replaces up to five separate units usually required. Embodies a new principle which permits a Multi-Stage flame control with the use of a single-contact thermostat.

Control has a built-in pressure regulator, pilot filter, and safety shutoff with automatic pilot. This



avoids the need for separate solenoid, pressure regulator, pilot filter, A-cock, and B-cock, and eliminates all extra piping.

New unit is compact in size, AGA approved, silent in operation. Capacity is 70,000 Btu on gases less than 800 Btu per cu ft, or 100,800 Btu on gases more than 800 Btu per cu ft.

Automatic Products Co., Milwaukee, Wis.

Combustion Chamber... 100

A pear shaped, stainless steel combustion chamber for oil burners has recently been added to the manufacturer's line of round, square, and rectangular types.

Available in three widths and twelve lengths, with capacities from 1.0 to 3.0 gph, new pear shaped chamber brings the company's line to 32 standard sizes and shapes. In addition, many special designs are being fabricated for original equipment manufacturers. Unit features panel-type assembly.

Stefco Steel Co., Michigan City, Ind.



MAIL THIS NOW!

We will ask the manufacturer to send full particulars about the products and literature mentioned.

Be sure to circle the items you want.

6-50

Equipment Developments

97	98	99	100	101	102	103	104	105
106	107	108	109	110	111	112	113	114
115								

New Literature

280	281	282	283	284	285	286	287	288
289	290	291	292	293	294	295		

Manufacturer Jobber Dealer

Name

Company

Address

Address: AMERICAN ARTISAN, 6 North Michigan Ave., Chicago 2, Illinois

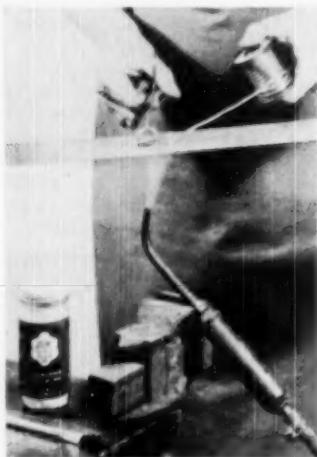
EQUIPMENT DEVELOPMENTS

(Use Coupon on Page 123)

All Metal Solder 101

New all metal wire solder shows a high degree of resistance to atmospheric, alkaline, or acid corrosion.

The solder, in combination with manufacturer's all metal flux, shows a definite affinity for a majority of



metals now in use. Tensile tests prove a bond two to three times greater strength than 50/50.

Ductility and workability of the new material is further illustrated by the fact that for the first time an all metal solder containing corrosive resistant properties can be extruded in $\frac{1}{8}$ in. wire and wound on spools.

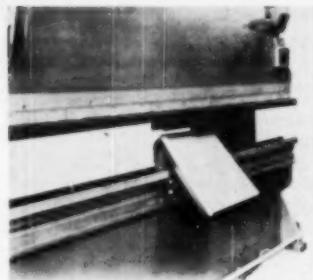
Farrelloy Co., Philadelphia 21, Penn.

Corner Forming Process 102

Recently developed process makes it possible to form ball corners in standard press brakes at a saving over conventional methods. Additional benefits are improved product appearance, minimum spoilage, elimination of corner welding and finishing, and substantially reduced handling.

Operations, consisting of 4 strokes each, start with a square sheared blank. The first operation is to trim corners, the second is to draw the

corners, the third to cam trim after the draw. These first three operations are performed in a single



intermediate press brake equipped with three sets of dies.

The fourth operation, restriking the side flanges, also requiring four strokes, is performed in a second brake equipped with a sectional re-strike die. This consists of a pair of master ends and filler blocks to permit restriking any length within the capacity of the brake.

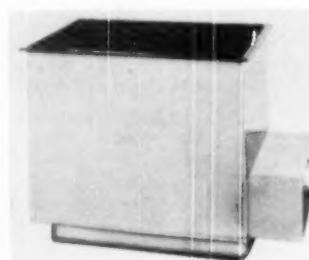
Thus, a ball corner panel is completed in only two handlings without any special machinery. Dies are easily and economically adaptable to a wide variety of sizes.

Verson Alsteel Press Co., Chicago 19, Ill.

Gas Floor Furnace 103

Gas burning floor furnace fills the need for a compact, shallow type of heating unit in smaller houses, especially those without basements.

Equipment has been made as



corrosion resistant as possible. The outer non-corrosive steel casing has a hammerhead enamel finish. Heat exchangers are made more durable by a baked, high gloss enamel finish, (inside and outside). Manifolding, burners, and controls (a single complete assembly) are protected by a removable housing.

Three sizes are now in production, providing units with 30,000, 50,000, and 65,000 Btu input ratings. All three are 27 $\frac{9}{16}$ in. deep without additional overhang of valves or other fittings. All are designed for a minimum of joist cutting to simplify installation.

Surface Combustion Corp., Toledo 1, Ohio.

Gas Fired Equipment 104

Two new gas fired warm air units, one a gravity furnace and the other a winter air conditioner, both have heavy gauge steel heat exchangers

and are finished with a light green Hammerhead baked enamel steel jacket. The gravity furnace (illustrated) is manufactured in two sizes: 70,000 and 90,000 Btu input per hour. The forced warm air unit is also produced in two sizes: 85,000 and 110,000 Btu input per hour.

Units were especially designed with low cost, competitive homes and housing developments in mind. Both units are AGA approved.

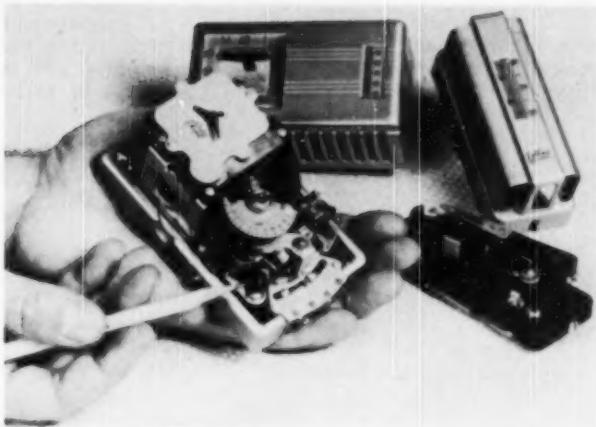
Richmond Radiator Co., New York 17, N. Y.

Small Trailer 105

Trailer hitch to any light truck or passenger car. Can be taken to any job and left there without tying up a chassis. It hitches to all standard bumpers and is completely equipped with an all-car hitch, support jack, wheels, tires, tubes, lights, semi-elliptical springs, and a torqueless axle.



Available in two models, one 91 $\frac{1}{2}$ in. long, the other 75 in. long. *Morrison Steel Products, Inc., Buffalo, N. Y.*



Time Modulation Thermostat

New home thermostat operates on a time pattern which is controlled by minute room-temperature variations. Accurately follows changes in the outside weather through a new means of applying artificial heat to the temperature-sensing element. The heater plug (indicated by pencil) is mounted directly on the bi-metal element, a feature which greatly increases instrument's sensitivity to temperature changes.

In mild weather thermostat calls

106

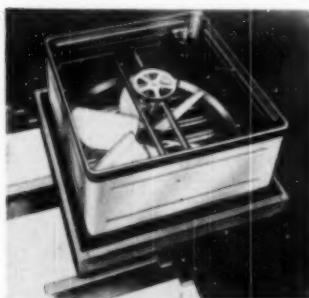
for infrequent, short cycles of the heating system. As outside temperatures drop, cycles become more frequent and last for progressively longer periods.

Stratification, drafts, and cold floors are practically eliminated because the heating plant in effect modulates its output to maintain a constant supply of heat, the temperature of which is balanced with heat loss from the house.

Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.

Attic Fans

New Clipper attic fan is designed for use in houses where low head room in attics makes the upright type of fan impractical. New fan



is a compact, package type that can be mounted face downward in the attic floor and can discharge air in a vertical direction.

Available both as a fully packaged

assembly and as a fan unit alone. Packaged assembly includes the fan, resilient mountings, felt sealing strips, and automatic ceiling shutter.

Air Controls, Inc., Cleveland 14, Ohio

Wire Brushes

Flex Wire brush features wires individually locked in rubber.

A resilient rubber mounting holds wire securely, reducing the danger of flying bristles. Since there is no rigid hinge point to mar work,



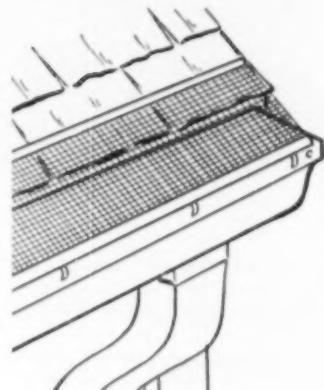
brush can be used right down to the core. Its individual wires are always in an upright position, keeping maximum number of cutting points in contact with work.

Brushes are available in 4, 6, 7, and 8 in. diameters, are designed for all portable or stationary shop equipment.

Skilsaw, Inc., Chicago 30, Ill.

Gutter Protector

Gutter protector keeps out leaves, twigs, and other flying debris. Completely covers entire length of gutter, improving appearance of the house and ending all need for gutter cleaning. Prevents dirty water



from running down side of the building and eliminates clogged leads.

Available in 3-foot sections, 5 1/4 in. wide.

Steele Mfg. Co., Ashland, Ky.

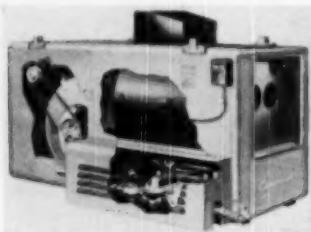
Gas Fired Heating Units

Two new gas fired heating units are similar in many design and appearance characteristics. Type 155 (illustrated) was designed for attic or crawl space installation in small houses or multiple installation in large ranch style houses. Is especially adaptable for basementless houses because it occupies no floor space and permits construction of the house without a utility room. Can be installed with perimeter, zone control or conventional forced air systems. Available in 60,000 and 90,000 Btu capacities. AGA approved for natural, mixed, manufactured, LP or Butane air gases.

EQUIPMENT DEVELOPMENTS

(Use Coupon on Page 123)

Type 151 is for installation in stores, offices, schools, and other commercial applications where a



blower type, direct-fired unit heater is preferred. Available in four sizes—60,000, 90,000, 120,000, and 150,000 Btu input.

L. J. Mueller Furnace Co., Milwaukee 15, Wis.

Air Filter.....111

Filter box for unit heaters cuts maintenance costs as it cleans air. The primary filter use is the cleaning of air as it is recirculated in the heated area, making the air as dirt-free as possible. Secondly, since only clean air is permitted to flow through the unit heater, the heater parts are not covered and infiltrated with dirt and dust. The result is higher efficiency, less wear of parts, and elimination of the necessity for taking down the heater for cleaning and maintenance. The only expense necessary is the replacement of filters.



A typical application is shown in the illustration.

Research Products Corp., Madison 10, Wis.

Arc Welder.....112

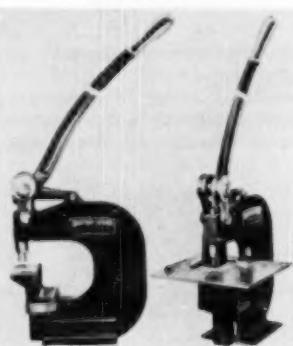
New arc welder features hydraulic amperage control which enables the operator to make instant amperage changes without leaving the work and without breaking the arc. Amperage can be changed from minimum to maximum or vice versa within a few seconds. Amperage is controlled by a reversible foot switch, ideal for crater elimination and for amperage change by the operator when going from one thickness of metal to another. Heat can be reduced quickly or slowly at the option of the operator.

Welders are supplied in three amperage ranges—10 to 200 amperes, 10 to 400 amperes, and 10 to 700 amperes.

Miller Elec. Mfg. Co., Appleton, Wis.

Bench Punch.....113

No. 18 bench punch has a throat depth of 7 in. and a throat height



of 5 in. High, deep throat is desirable for a number of applications, chief among them being the ability to punch holes close to the web of an angle. Value of the punch is further increased because the die shoe is both removable and adjustable, permitting the use of close fitting punches and dies. Maximum capacity of tool is a 13/16 in. round hole through 12 gauge mild steel.

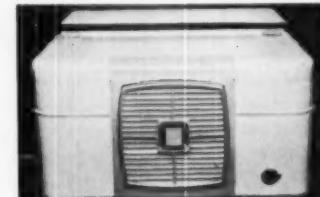
Standard punches and dies, in a

wide range of sizes, can be used. Irregular shaped punches and dies are also available from the manufacturer.

Whitney Metal Tool Co., Rockford, Ill.

Room Cooler.....114

A new, improved air conditioner for home or office use provides greater capacity, efficiency, and comfort at a lower price than the manufacturer's previous models. The $\frac{1}{2}$ hp model is 13 in. high and 27 in. wide, has a capacity of 6,000 Btuh. A larger, $\frac{3}{4}$ hp model, is



available with a capacity of 8,500 Btuh. Both are designed for easy installation in any type of window.

No plumbing connections are required for either model and both can be plugged into any convenient electrical outlet since they operate from standard 110 V current.

Airtemp Div., Chrysler Corp., Dayton 1, Ohio

Winter Air Conditioner...115

Gas hi-furnace, built primarily for small homes, is completely equipped for winter air conditioning. Unit consists of a wall-flame monoport burner, furnace and radiator assembly, blower, air filters, humidifier (extra optional equipment), and all necessary controls for complete automatic operation. Occupies less than 5 sq ft of floor area. Capacity is 80,000 Btu at plenum.



Furnace is fully tested and listed by AGA.

Timken Silent Automatic Div., Jackson, Mich.



**"My stainless supplier
gave me this space!"**

The Armco Stainless Distributor doesn't carry an unoccupied corner of a shop around on his back. But he *does* make extra work room available for many contractors. His facilities make it possible for them to use space for profitable production instead of idle storage.

Because the Armco Distributor can give you *immediate* delivery on stainless sheets, angles and fasteners, you can stock *less* materials.

And because you get *all* your materials at one time, and from one place, this prompt service is a two-way money and time saver. Why not take advantage of it to keep stock-on-hand down to "job level"?

The Armco Distributor can make quick delivery on most of your requirements. Even if he does not have the material in stock, chances are he has a suitable substitute—or has an order already placed with the Armco Mills that will quickly handle the original request. He also has a staff of experienced salesmen, and top-flight technical assistance from the mill is available to him at all times to help with shop and installation problems.

For intelligent, helpful service—and quick delivery of the right steels—call the nearby Armco Distributor. If you don't know him, we'll gladly put you in touch. Write us.



ARMCO STEEL CORPORATION

350 CURTIS STREET, MIDDLETOWN, OHIO, WITH PLANTS AND SALES OFFICES FROM COAST TO COAST • THE ARMCO INTERNATIONAL CORPORATION, WORLD-WIDE



Quantity Production
With Precision
Manufacturing

PLUS

Thorough
Testing



Part of the battery of 18 Sundstrand Automatic Lathes for turning fuel unit bodies, rotor housings, pump bodies, etc. Material transporting is reduced by conveyor which brings rough body castings directly to machines.



Eighteen separate operations are performed with 2 handlings in special high production double end drilling, tapping and boring machine. Parts are station checked in inspection equipment at right.



A battery of three automatic cycling Sundstrand Rigidmills with extremely accurate automatic index fixtures mill special tooth form in steel pumping member.

... Of All
Sundstrand
Fuel Units In-
sures Prompt
Delivery
... RELIABLE
PERFORMANCE

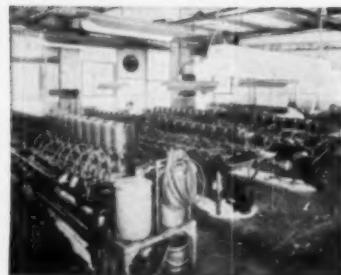
Whether you need fuel units for original equipment, replacements, or both, you want a ready source of units that will give you top performance.

In order to meet your demands we have maintained precision manufacturing equipment, as illustrated at the left, and thorough testing facilities as shown at the right.

This is the combination that gives you better oil burner installations. Specify Sundstrand.

Free Additional Data Write for information on complete line of Fuel Units. Free data is available on single stage, two-stage and solenoid operated Fuel Units. Write for your copies today. Ask for Bulletin No. A-54.

NOTE: Sundstrand Fuel Units are being manufactured in Canada by John Inglis, Ltd., 14 Strachen Ave., Toronto, Canada.



After final assembly, all Sundstrand fuel units are operated for 2½ hours under high pressure on the specially designed run-in stands illustrated above.



Each unit is tested under actual operating conditions in the sound proof booths shown above. Included are tests for capacity, mechanical efficiency, pulsation, cut-off, electrical consumption, quietness.



Ten hour static pressure test is made on these efficiently designed stands. Any leaks are easily detected during this ample testing period and quickly corrected.



SUNDSTRAND HYDRAULIC DIVISION
SUNDSTRAND MACHINE TOOL CO.

2561 ELEVENTH STREET • ROCKFORD, ILLINOIS

FUEL UNITS • HYDRAULIC PUMPS • TRANSMISSIONS • FLUID MOTORS • VALVES and CONTROLS

HOME OF OHIO VALLEY LINE



OHIO VALLEY

Name Calling Can Be Fun!

ESPECIALLY when we are calling names of Ohio Valley sales representatives, and cities where you can reach them. One of these men is near you — ready to fill your needs in quality pipes, ducts and fittings. Call him soon.

Metal Manufacturing Division Sales Representatives

• 1 ATLANTA, GEORGIA

Cy Moroney Company
815 Peachtree
1018 Peachtree Circle, N.E.
Atlanta, Georgia

• 2 CHICAGO, ILLINOIS

F. W. Steffert & Son
F. W. Steffert, Jr.
1215 North Branch Street
Michigan 2-3661
J. C. Meahan
1725 W. 81st Street
Vincennes 6-6364
Walter S. Oberholz
2143 W. Lyndale Street
Humboldt 2-0569
L. R. Bushman
2729 Eskcol
Zion, Illinois
Zion 2327

• 3 CINCINNATI, OHIO

Stanley M. Rankin
58 Broadview Place
Fort Thomas
Hiland 2823

• 4 COLUMBUS, OHIO

John Farrar
198 Mayfair Blvd.
DOuglas 0486

• 5 DALLAS, TEXAS

Wm. H. Durham & Associates
10th Floor — Second Unit
Santa Fe Building
Riverside 3935

• 6 DENVER, COLORADO

Ed. F. Giles Company
1436 East Eighth Avenue
Denver 3, Colorado
CHerry 2360

• 7 MEMPHIS, TENN.

Cy Moroney Co.
C. A. Moroney
1169 Jefferson Ave.
Tel. 36-3796

• 8 PITTSBURGH, PA.

John H. Farnham
1806 Oliver Bldg.
ATlantic 1-7854
B. L. Ruston
5822 Elmer Street
MONroeville 1-1965

J. C. Lutzinger
2435 McIntyre Place
FAirfax 1-1962

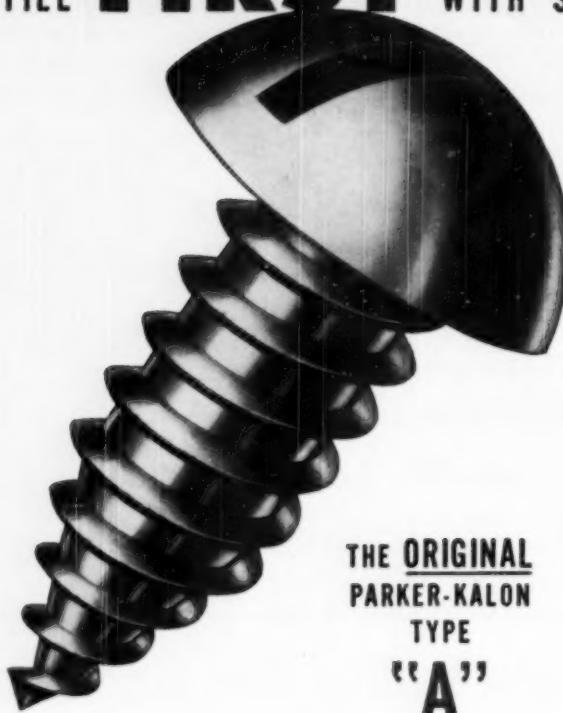
• 9 ST. LOUIS, MO.

Mr. Richard H. Pentecost
629 W. Rockhill Avenue
Kirkwood, Missouri
Terryhill 3-2403

Metal Manufacturing Division of
OHIO VALLEY HARDWARE & ROOFING COMPANY
Evansville 2, Indiana



THE **FIRST**
STILL **FIRST** SHEET METAL SCREW...
WITH SHEET METAL MEN



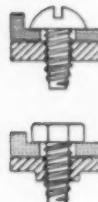
It's no easy trick to make a hardened self-tapping screw. It must be hard,—to tap its own matching threads clean and fast. But if it's too hard, the head may pop off when you drive it. Parker-Kalon learned the trick when they pioneered the Type "A" Sheet Metal Screw,—learned how to keep hardness and toughness properly balanced in every screw. And there's no substitute for 35 years' experience. That's why P-K Type "A" is still first choice of leading sheet metal contractors everywhere.

If you are still tapping, bolting, riveting, or soldering where you could use sheet metal screws, get acquainted with P-K Type "A", and all the others in the famous P-K family of fasteners! Start making the savings you're missing!

Sold Only Through Accredited Distributors



COLD-FORGED SOCKET SCREWS, WING NUTS, THUMB SCREWS • HARDENED SCREWNAILS AND MASONRY NAILS
SHUR-GRIP FILE AND SOLDER IRON HANDLES • METAL PUNCHES • DAMPER REGULATORS AND ACCESSORIES



FOR HEAVY
SHEET METAL WORK

Use P-K Type "Z" for sheet metal .050" to .200" thick. For sheets or plates over .200" thick, use the heavy duty Hex Head Type "Z". For stainless steel installation in dairies, laboratories, hotel kitchens, etc., use Type "Z" stainless.



MEET THE FAMILY
OF P-K FASTENINGS

Write for Booklets Nos. 480 and 475A. Booklet 480 lists proper hole sizes for efficient driving and maximum security, plus other helpful information. SAMPLES, too. Just tell us what you are fastening. Parker-Kalon Corp., 200 Varick St., New York 14

The KO-Z-AIRE Progressive Profit Plan for Dealers recognizes that the larger Success of KO-Z-AIRE, Incorporated is inseparably linked with the success of its Dealers

KO-Z-AIRE

Advance Design

**WINTER
AIR CONDITIONERS**

PRODUCTS

PROMOTION

PROFITS...

These three short words outline the KO-Z-AIRE Progressive Profits Program. This concept of factory-dealer partnership, functioning on the basis of sound and fundamental values enables the KO-Z-AIRE Dealer to increase sales, to improve service to customers, and to sell on even terms with any competition.

Profits are the result of effective operation under this plan. And in addition to the money profits, KO-Z-AIRE Dealers enjoy the profits of satisfaction—a very real part of good business. Not only profits for today or just for tomorrow, but continuing and expanding profits.

The elements of your success and ours are in this KO-Z-AIRE "Progressive Profits Program". Get the details now!

The Hot Seat

MAIL TODAY

Here's why Dealers like the new 1950 Advance Design KO-Z-AIRE Warm Air Heating Line:

1 KO-Z-AIRE offers a full range of sizes and prices in oil and gas-fired equipment—Most units shipped completely assembled and wired ready for uncrating and installation—Faster sales . . . greater profits.

2 KO-Z-AIRE engineering and simplicity of design assures dependable, trouble-free, economical performance—Minimizes servicing problems . . . builds greater customer satisfaction.

3 KO-Z-AIRE factory representatives are trained to give counsel and cooperation in developing warm air heating business.

This all adds up to continuing and expanding opportunity for maximum success—and profits for KO-Z-AIRE Dealers!

Distributor Inquiries Invited

KO-Z-AIRE, Incorporated

GENERAL OFFICES—RED OAK, IOWA
Representatives in Principal Cities



KO-Z-AIRE, Incorporated, Department AA-6, Red Oak, Iowa

Send details on the KO-Z-AIRE Progressive Profit Program at once or have your factory representative call on us.

Name. Title.

Firm.

City and State.

Please Check: We are Furnace Dealers Furnace Distributors



BERGER GOT A STAKE IN STAINLESS

Stainless steel's popularity for residential roof drainage systems is growing fast. This attractive, long-lasting metal is becoming more and more important in your business. Customers and prospects will be asking all sorts of questions about using it. As a roofing contractor, you've got a stake in stainless—and a bright opportunity for profits—so it's important that you know all the answers.

HERE ARE THE FACTS:

● Berger manufactures a *complete line* of ready-to-use roof drainage products, fittings and accessories for you—all made of Republic ENDURO Stainless Steel, the metal *proved by more than 20 years of service in buildings of every type.*

Berger ENDURO Stainless Steel Roof Drainage Systems are stronger and more attractive than ordinary systems. They do not bleed or discolor paint. They resist rust and corrosion. They resist abrasion and denting. They have the strength needed to stand up under heavy ice and snow loads. They withstand severe temperature changes without expansion cracking or buckling. They require little or no maintenance. Very likely, they will last for the life of the building on which you hang them. They cost less in the long run. They make money for you.

Important to you is the fact that you needn't change your methods or equipment one bit to give your customers all the advantages of stainless steel. Because of its high strength-to-weight ratio, ENDURO is used in thinner, lighter sections that are easy to handle and hang . . . especially in time-saving long lengths. 28-gauge ENDURO works as readily as familiar 26-gauge galvanized steel.

When soldering ENDURO, use 50-50 or commercial stainless steel solders with a large iron heated slightly more than for ordinary jobs. Immediately after making the joint, wash away all acid and flux with 5% to 10% solution of washing soda with water.

In today's expanding construction market, your stake in stainless is doubly important. If you haven't already had the opportunity to work with Berger ENDURO Stainless Steel Drainage Products and you want more information, see your jobber, or write us:

Berger Manufacturing Division
REPUBLIC STEEL CORPORATION • CANTON 5, OHIO

Warehouses in BOSTON, PHILADELPHIA and ST. LOUIS • Sales Offices in DETROIT, MICH., and INDIANAPOLIS, IND.

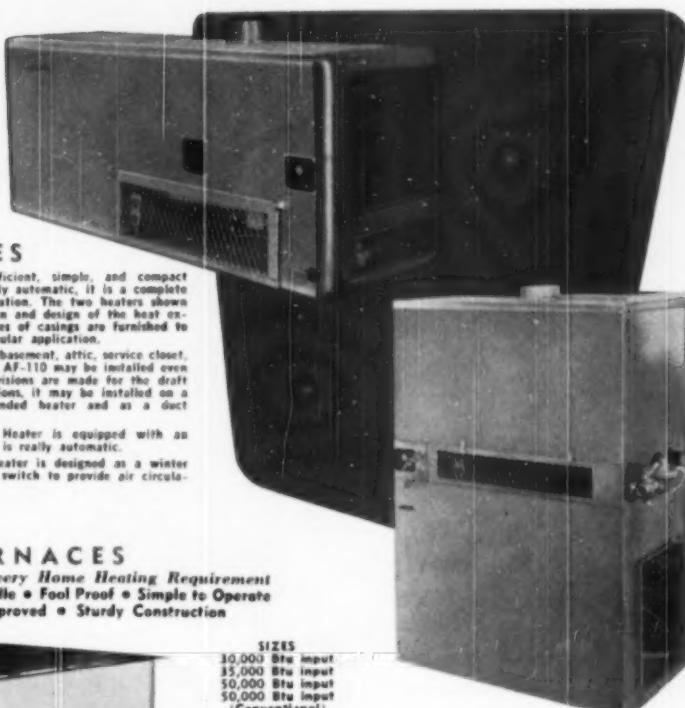
Berger Stainless Steel Roof Drainage Products include Snap-fit Eaves Trough; "K" Gutter; Plain Round, Corrugated Round and Corrugated Square Conductor Pipe; plus a complete line of all necessary fittings. All are made of 28-gauge Republic ENDURO Stainless Steel, Type 301, No. 2, satin finish.

BERGER
STAINLESS STEEL ROOF
DRAINAGE PRODUCTS





CENTRAL GAS HEATER Can be installed anywhere



TWO STYLES

Here is truly a universal, efficient, simple, and compact CENTRAL HEATING UNIT. Fully automatic, it is a complete packaged unit ready for installation. The two heaters shown are almost identical in operation and design of the heat exchanger. The two different types of casings are furnished to meet requirements for a particular application.

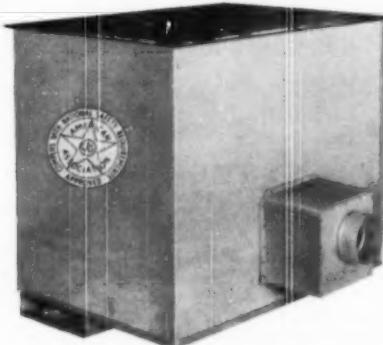
Heaters may be installed in the basement, attic, service closet, or utility room of a home. The AF-110 may be installed even under the house if certain provisions are made for the draft diverter. For industrial applications, it may be installed on a shelf or balcony; as a suspended heater and as a duct heater.

Each John Zink Central Gas Heater is equipped with an automatic safety shut-off that is really automatic.

The John Zink Central Gas Heater is designed as a winter air conditioner with a summer switch to provide air circulation during warm weather.

Gas Fired FLOOR FURNACES

A Size for Every Home Heating Requirement
Small Floor Grille • Fool Proof • Simple to Operate
AGA Approved • Sturdy Construction



SIZES
30,000 Btu Input
35,000 Btu Input
50,000 Btu Input
60,000 Btu Input
85,000 Btu Input
(Conventional)

Send Coupon for Free Literature

MAIL TODAY

JOHN ZINK CO., 4401 So. Peoria, TULSA, OKLA.

Without obligation, please send me literature on FLOOR FURNACES. CENTRAL HEATERS.

Name _____

Company _____

City _____ Zone _____ State _____

John Zink **Centra****l Hea****ter**

4401 SOUTH PEORIA

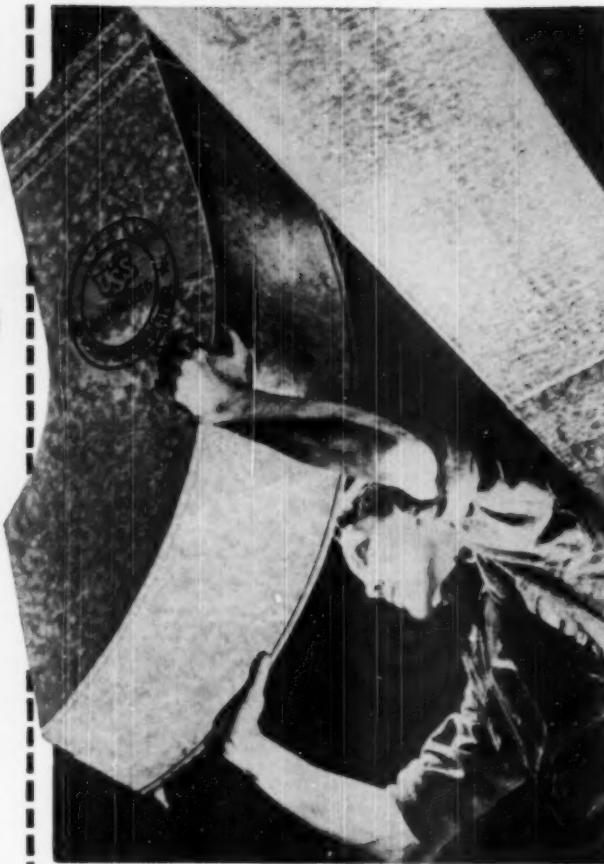
TULSA, OKLAHOMA

AMERICAN ARTISAN, JUNE, 1950

Neat jobs
like this
easy to form with
U·S·S
GALVANIZED
SHEETS

HERE'S WHY: Uniform in ductility, flatness and coating, U·S·S Galvanized Sheets are easy to fabricate. You get true bends, tight seams and neat joints—even in forming the most difficult angles and shapes. And their tightly adhering coating of zinc assures long life and a finish that contributes to the pleasing appearance and salability of every job you turn out.

But workability is not the only reason for the tremendous popularity of these superior steel sheets. The most widely advertised and best-known sheets in the industry, they enjoy a public acceptance second to none. Customers know that the familiar U·S·S trademark stands for dependable quality.



To stand up under severe
atmospheric conditions

**U·S·S GALVANIZED
COPPER STEEL SHEETS**

—give twice the atmospheric corrosion
resistance of little
additional cost

CARNEGIE ILLINOIS STEEL CORPORATION, PITTSBURGH
COLUMBIA STEEL COMPANY, SAN FRANCISCO

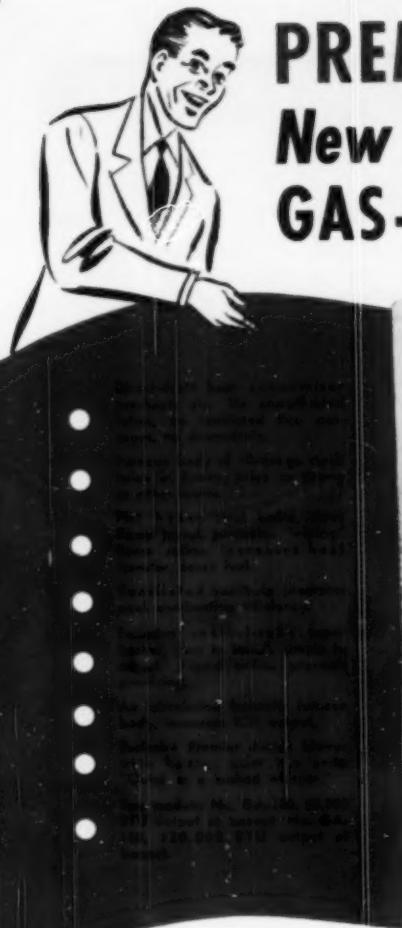
TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM

UNITED STATES STEEL SUPPLY COMPANY, WAREHOUSE DISTRIBUTORS, COAST-TO-COAST
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

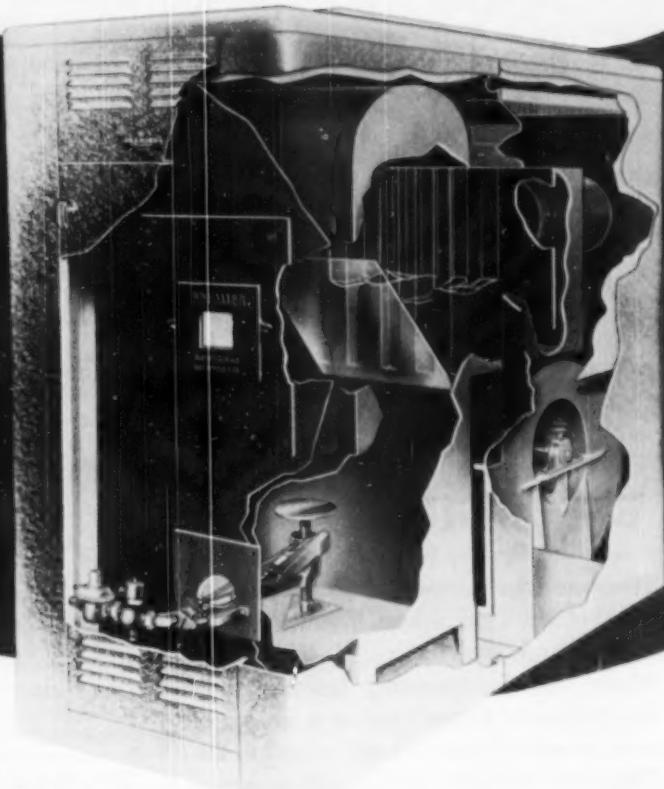


GALVANIZED STEEL SHEETS

UNITED STATES STEEL



PREMIER Announces Sensational New "G-A" Series GAS-FIRED Air Conditioners



Write for
Complete story

Mail postcard for data on new "GA" series and 9 other gas furnaces. Learn all about complete PREMIER heating, air conditioning, and cooling line. Get brochure on famous PREMIER Dealer Plan. No obligation. Write today!

PREMIER proudly presents the newest and finest gas furnaces ever built! They are unique and individualized in design, packed with valuable, exclusive engineering and selling features. They offer extra sales and extra profits for the independent PREMIER Dealer, wherever gas is available for fuel.

These two new units round out a PREMIER line of eleven gas-fired models, including gravity, forced air, and "Hi-Bay" types. All these in addition to oil-fired and coal-fired units, oil burners, blowers, cooling equipment, and accessories.

PREMIER likewise gives the Independent Dealer an amazingly complete program of cooperation, in advertising, selling, engineering and financing.

Mail postcard today for all the facts about this broad PREMIER line and program, available under the Exclusive PREMIER Franchise.

PREMIER Furnace Company, Dowagiac, Michigan

NOW AVAILABLE

A complete reprint, under one cover, of Professor S. Konzo's invaluable series of articles —

The "HOW, WHAT AND WHY" of the New Winter Air Conditioning Manual

Everyone who is now using or expects to use the new "Code and Manual for the Design and Installation of Warm Air Winter Air Conditioning Systems" will find Professor Konzo's series a source of much practical help in understanding the Code and correctly applying it to actual jobs. In this great series, Professor Konzo not only explains step by step exactly how to use the Code, but, in addition, tells in detail of the research and experience that is behind each step in the suggested procedures.

Price — Only \$1.00 per copy

AMERICAN ARTISAN

6 NORTH MICHIGAN AVE.

CHICAGO 2, ILLINOIS

NEW LITERATURE

Use Coupon on Page 123

Gas Unit Heaters 280

Gas unit heaters featuring cast iron heat exchangers are illustrated and described in a revised folder just published. Specifications for six sizes, ranging from 85,000 to 215,000 Btuh, are included.

Automatic Gas Equipment Co., Pittsburgh 21, Penn.

Silica Gel Dehumidifiers 281

Previously made only for the U. S. Government, automatic silica gel dehumidifiers are now available for commercial market. Two illustrated folders describing the line are offered, both including specifications and operating data.

Daly, Merritt & Sullivan, Inc., Washington 7, D. C.

Template Catalog 282

Thirty templates for the use of engineers, draftsmen, architects, and designers are illustrated and described in Catalog No. 50.

A feature of the catalog is the depiction of templates made to order for private drafting room use, or for customer distribution by companies concerned.

RapiDesign, Inc., Glendale, Calif.

Draft Adjusting Method 283

A rule-of-thumb method for adjusting the draft setting of Field barometric draft control type M models has recently been developed.

A scale of weight adjustments allows the installer to adjust the control for any of several draft readings. When installations must be made without the aid of draft gauges, new method will prove a time-saver, although it is not as exact and does not result in as efficient operation as if draft gauges were used.

Field Control Div., H. D. Conkey & Co., Mendota, Ill.

Air Handling Units 284

Bulletin illustrates and describes a new line of air handling units intended primarily for remote installation in central plant type air conditioning systems. Units can also be used for commercial and industrial heating and ventilating. Sizes range from 1,650 to 14,060 cfm at 500 fpm coil face velocity when direct expansion coils are used and up to 18,000 cfm when water coils are used. Standard and double tube steam heating coils are also available. All coils utilize continuous plate fin construction.

Each unit consists of a fan section and a coil section with drain pan for cooling and heating coils, depending upon requirements. Filter sections, face and bypass dampers, and other accessories are available.

Sturtevant Div., Westinghouse Elec. Corp., Hyde Park, Boston 36, Mass.

FREE WINKLER SALES TRAINING SCHOOL



Open to all Winkler Automatic Heating Equipment Dealers and their Salesmen

Winkler is now backing-up its line of fine heating equipment with the most comprehensive Sales Training Program you have ever seen! *Dealers and salesmen attending have acclaimed it amazingly effective in stepping-up sales and profits.*

The five-day Winkler School covers sales procedures proved most successful—product demonstrations—business promotion methods. Not just a series of lectures! After individualized instruction by factory experts, trainees make actual sales presentations—learn how to close sales every month of the year.

Hundreds attend Winkler School—enthusiastic over results

"Without doubt the finest."

"It is certainly of great value to us to send our men to a school where they get such practical training in engineering and sales."

"Even one of us feels that the training is very helpful. It has brought to our attention various factors in selling which we did not previously recognize."

Trainees completing the course are equipped to do a hard-hitting job of selling Winkler Automatic Heating Equipment—able to start earning immediately.

Engineering course also available

The Winkler Engineering Institute offers a technical course in sizing, installing, wiring and servicing Winkler Heating Products. Includes study of fuels and requirements for combustion. Invaluable for a well rounded-out knowledge of heating installations of all kinds.

YOU CAN APPEAL TO ANY TYPE OF BUYER WITH THIS FAMOUS LINE OF FINE HEATING EQUIPMENT



Oil and coal-fired furnaces



Oil Burners



Wall Furnaces



Stokers



Gas-fired Furnaces



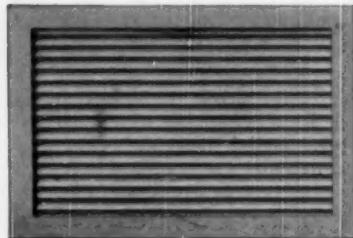
Gas Conversion Burners

U. S. MACHINE CORPORATION

Dept. A60, Lebanon, Indiana

You can't see through INDEPENDENT

NO-VISION GRILLES for Doors, Walls and Partitions



...BUT YOU CAN SEE

Extra Profit Opportunities with
the Complete Line of
Independent Registers and Grilles



Where ventilation without vision is desired—in doors, walls and partitions—Independent No-Vision Grilles meet every requirement. It's impossible to see through an Independent No-Vision Grille from any viewpoint.

Independent No-Vision Grilles are made in two styles—Style C, with grille core only, installed with molding as shown above; Style R, with overlapping rim on all four sides of one surface of the grille, as illustrated at the left.

Independent No-Vision Grilles are made in 46 standard sizes, for openings from 8" x 6" to 30" x 24", and additional sizes can be furnished.



SEND FOR THIS BOOK

Write for new Catalog No. 30—gives schedules of sizes, details and prices of registers and grilles for every purpose.



Always Leading—Always Progressing

**THE INDEPENDENT
REGISTER CO.**
3747 E. 93rd STREET • CLEVELAND, OHIO

NEW LITERATURE

Use Coupon on Page 123

Conversion Oil Burner 285

A new leaflet describes a conversion oil burner recently added to the manufacturer's line of heating equipment. Folder is illustrated with a photograph of the complete unit and line drawings of outstanding features. Includes engineering data and specifications.

Thatcher Furnace Co., Garwood, N. J.

Fan & Blower Catalog 286

New illustrated catalog gives full engineering information, dimensions, performance, and prices for all types and sizes of fans for industrial, commercial, and residential applications. Catalog includes many new types of fans with full details of application.

Chelsea Fan & Blower Co., Inc., Irvington, N. J.

Phosphate Coating Chemicals 287

A recently issued selection chart covers phosphate coating chemicals. Twenty-four products and processes are included in the chart which lists metal surfaces treated, type of coating, method of application, scale of production, typical products treated, government specifications, and other pertinent data.

American Chemical Paint Co., Ambler, Penn.

Grille Selector Slide Rule 288

Grille selector slide rule provides rapid sizing of ventilating and air conditioning grilles. Grille size is based on noise level, air volume, throw, and ceiling height. Table of maximum allowable noise levels for different installations is printed on rule face. Range of variables is great enough for the selection of a grille for any common application.

Available to architects, engineers, contractors, and students.

Uni-Flo Sales Div., Barber-Colman Co., Rockford, Ill.

Blow Torches 289

An informative folder describes and illustrates the 1950 line of blow torches, including new models, new styling, and new features. Three of the most popular torches have been redesigned to increase their functional utility.

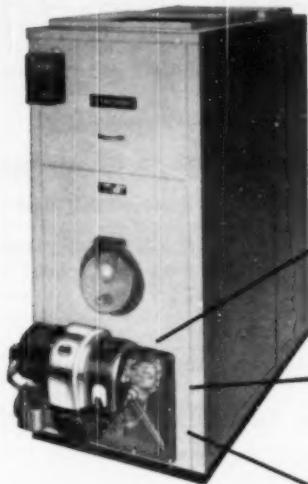
Newest addition to the line is the half pint torch for light shop work. This torch is complete with soldering iron rest and windshield. The 3½ in. diameter tank is high polished brass and holds 7½ oz of fuel; the torch burns 3½ hours full open and attains a temperature of 1700 F; the bottom is concave to facilitate filling. Pressure is maintained by a brass wire interwoven with the wick which conducts heat from the burner to the tank.

Turner Brass Works, Sycamore, Ill.

SELL CENTURY

YEARS OF SERVICE

FULLY AUTOMATIC HEATING EQUIPMENT FOR GREATER CUSTOMER SATISFACTION AND HEATING PROFITS!



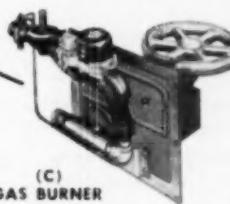
OIL OR GAS-FIRED



(A)
GUN BURNER
Model "L" or "O"



(B)
VAPORIZING BURNER



(C)
GAS BURNER

CONVERTIBLE 3 WAYS!

The new, low-cost, Century "Convertible" can be fired by any one of three different types of burners shown at right. Easy to install. Ideal for housing projects or change-overs of present heating equipment.

(A) With Gun Type Oil Burner—100,000, 130,000 or 170,000 B.T.U. (Bonnet Rating).

(B) With Vaporizing Oil Burner—60,000* or 80,000 B.T.U. (Bonnet Rating).

(C) With Gas Burner—60,000*, 100,000, 140,000, 180,000 B.T.U. Input.

*Hiboy or Utility Model. Others, LOBOY or Basement Models.



CENTURY MODEL "L" SERIES
CONVERSION OIL BURNERS

L1C—Capacity $\frac{1}{4}$ to 2 G.P.H.

L2C—Capacity $\frac{1}{2}$ to 4 G.P.H.

Dual Ignition—2-Stage Pump

L3C—Capacity 5 to 10 G.P.H.

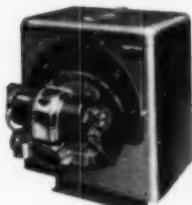
L4C—Capacity 10 to 20 G.P.H.



CENTURY MODEL "O" SERIES
QUIET—CUSHION-CRADLED
CONVERSION OIL BURNERS

O1—Capacity $\frac{1}{4}$ to 2 G.P.H.

O2—Capacity $\frac{1}{2}$ to 5 G.P.H.



CENTURY
"MIDGET POWERHOUSE"

Hot Water Boiler-Burner
Unit 380, 560 and 740 sq.
ft. radiation.

As Domestic Hot Water
Heater, 125 to 250 G.P.H.
Recovery Rate



Century "Crescent Super Heater" Winter Air Conditioners, the only Automatic Oil Furnaces on the market that have these TWO Important Features

Famous "Crescent Super Heater"—extracts maximum heat from every drop of oil.

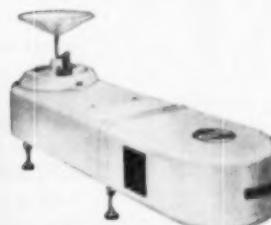
Quiet, Cushion-Cradled Burner—burns any type of residential heating oil. Filtered, forced air circulation...means clean, uniform heating.

Green Baked Enamel Finish



Loboy (basement) Model: 105,000,
135,000, 170,000, 230,000, 280,
000 and 380,000 B.T.U. (Bonnet
Rating).

Hiboy (utility) Model: 85,000 and
135,000 B.T.U. (Bonnet Rating).



CENTURY MODEL "G" SERIES
CONVERSION GAS BURNERS

G150—Input Min. 87,000;

Max. 153,000

G250—Input Min. 145,000;

Max. 249,000

MADE BY CENTURY ENGINEERING CORPORATION
CEDAR RAPIDS, IOWA

Manufacturers of High Quality Automatic Heating Equipment for More Than 25 Years

alnor // Velometer



**gives instant,
direct reading
of Air Velocity
... Anywhere!**



Here is a precision-built, self-contained, portable instrument that gives instant, accurate reading of air velocities—anywhere. Measures speed of flow through ducts, grilles, motors, furnaces, etc., or in the open. Needs no calculations or reference charts. Anyone can use it and get accurate measurements. Available in a wide range of scales, and with a wide assortment of jets and fittings if needed. You'll want full details and prices, so write for Bulletin No. 2448-G. Illinois Testing Laboratories, Inc., Room 538, 420 N. La Salle Street, Chicago 10, Ill.

alnor

PRECISION INSTRUMENTS
FOR EVERY INDUSTRY

NEW LITERATURE

Use Coupon on Page 123

Gas Fired Equipment 290

Two new circulars describing gas furnaces and one covering a gas conversion burner are currently available. All three carry color illustrations of the units described and include dimension data and specifications.

Norman Products Co., Columbus 12, Ohio.

Power Oil Burners 291

Power oil burners which will burn not only present blended fuel oils but 100 per cent catalytic oil as well at high efficiency are described in a new 4-page circular.

A cutaway view of the Spiral-Ex burner head, a feature which provides complete, smoke-free combustion, is included in the folder together with photographs of complete assemblies.

Lynn Products Co., Lynn, Mass.

Heat Conditioning Unit 292

Two-color folder describes a heat conditioning unit which economically provides a continuous circulation of fresh, clean, humidified, and controlled air. Folder is illustrated with a keyed diagram of the unit; includes a line drawing of a typical installation.

Norwalk Air Conditioning Corp., South Norwalk, Conn.

Refrigeration Catalog 293

A 20-page catalog of refrigeration fittings and accessories is now available. Contains illustrations, details, and prices on the manufacturer's line of driers, strainers, charging lines, liquid indicators, check valves, and accessory items. Describes seepage-proof fittings that stand widely fluctuating temperatures, pressures, and variable vibration. Complete ordering information is included as well as discounts and credit terms.

Madden Brass Products Co., Chicago 10, Ill.

Temperature Controls 294

An attractive and informative two-color general catalog describes a complete line of electrical controls. Feature prominence is given to the recently announced line of automatic temperature controls for gas, oil and stoker heating and air conditioning. Both exterior and interior illustrations are shown of six new models with complete wiring and operating instructions and specifications.

A section of the catalog is devoted to a description of an automatic damper control for hand fired heating plants. Wall thermostats, Surf-A-Stats (hi-limit controls) and shaded pole, geared electric motors are also cataloged.

Crise Mfg. Co., Columbus 16, Ohio.

SMALLER-
BUT
GREATER!

NEW "Thrifty Fifty"

GAS-FIRED **NIAGARA** FURNACES

NOW provide more heat
per cu. ft. of space occupied . . .
units are approximately 30%
smaller than previous Niagaras
of equal capacity



DOTTED LINES indicate
relative sizes of previous
units of equal capacities.

NEW SERIES 50 Winter Air Conditioner

Input 100,000 BTU*

NOW	BEFORE
48 $\frac{1}{2}$ "	HIGH
47 $\frac{1}{2}$ "	WIDE
31 $\frac{1}{2}$ "	DEEP
10.2	CU. FT.
14.9	

*Made in 5 capacities

NEW SERIES 50 Gravity Furnaces

Input 95,000 BTU*

NOW	BEFORE
48 $\frac{1}{2}$ "	HIGH
28 $\frac{1}{2}$ "	WIDE
31 $\frac{1}{2}$ "	DEEP
6.2	CU. FT.
9.6	

*Made in 4 capacities

...with Niagara's Famous Cast-Iron* Heat Exchanger

All Series 50 Niagara units, made in sizes for large, medium and small homes, have the famous Niagara cast iron heat exchanger, long noted for efficiency and durability. Forced air units include De Luxe models with

*Combustion chamber is copper-chromium-iron alloy.

3-speed direct drive blower and standard units with single speed belt drive blower. Write for complete catalog.

NIAGARA FURNACE DIVISION
THE FOREST CITY FOUNDRIES COMPANY
2500 West 27th St., Cleveland 13, Ohio

NIAGARA makes all 3: Gas • Oil • Coal Furnaces • Cast Iron or Steel



From midget type $\frac{1}{4}$ " models to heavy production $1\frac{1}{4}$ " machines, there's always the one best drill for the job—a THOR . . . all handle styles, all popular speeds—every tool packing Thor's extra power . . . featuring the light weight and handling ease of Thor's modern design . . . available with stands and accessories. Call your Thor distributor for a free demonstration—or write for Catalog E-2. Independent Pneumatic Tool Co., Aurora, Ill.

Write for free
Electric Tool
Catalog E-2



ASK FOR THE *Sister Line*

- Belt Sanders
- Bench Grinders
- Drills
- Drill Stands
- Fender Hammers
- Grinders
- Electric Hammers
- Impact Wrenches
- Nibbler
- Nut Setters
- Polishers
- Sanders
- Saws
- Screw Drivers
- Tappers
- Valve Relucers
- Valve Reseaters
- Air Tool Kits

NEW LITERATURE

Use Coupon on Page 123

Industrial Tape 295

Pocket catalog, *Tape Is a Tool*, is intended as a guide to engineers, production and maintenance men, and other purchasers and users of industrial tape. Lists dozens of individual tapes, their specifications and uses. Actual sample strips of the many tapes are precisely reproduced with magnified sections which show construction details.

Polyken Industrial Tape, Chicago 6, Ill.

Exhaust Fan Catalog 296

Exhaust Fans for Business, Industrial and Institutional Buildings, a new informative catalog, illustrates and describes complete line of direct-drive and belt-drive exhaust fans as well as window and ventilating fans.

Catalog is complete with helpful information on where and how to use exhaust fans, how to determine size fan required and methods of installation. Includes details of design, construction, specifications, and performance data.

A copy of the catalog (Unit X6559) will be mailed to those requesting it on their company stationery. Address request to

Emerson Elec. Mfg. Co., St. Louis 21, Mo.

Architectural Aluminum 297

A 53-page portfolio covering the manufacturer's line of architectural aluminum products has recently been issued. Extruded shapes, embossed sheet, perforated sheet, plain sheet and plate, tubing and pipe, and other products for architectural use are described in the portfolio, which is in the form of a special pocket-type folder holding the loose sheets.

Assembly drawings are shown for all items, explaining how the various sections fit together and to adjoining building materials.

Three indexes make it easy to use the portfolio. The first lists all extrusion dies numerically by die number for cross reference. The second lists all items available for immediate shipment from warehouse. The third lists non-warehouse items for 4 to 6 weeks shipment from the mill.

Of unusual interest are the two types of suspended aluminum ceilings detailed for the first time. Perforated with $\frac{1}{8}$ in. holes in a diamond pattern on $\frac{5}{16}$ in. centers, a highly effective acoustical ceiling is provided when the old ceiling above the suspended ceiling is covered with sound absorptive material.

The portfolio is available without charge to all architects, designers, engineers, and other company officials who request it on their company letterhead. Address requests to

Reynolds Metals Co., Architectural Div., 2500 S. 3rd St., Louisville 1, Ky.



a
 Complete Furnace Line
 plus
 Complete Selling Help
 equals
 More Profit for YOU

A complete furnace line is a *must* for today's heating market. You have to be able to furnish your customers with a unit for any warm-air heating need—forced-air or gravity, large or small, for gas, oil or coal. And when you have a complete line, you need complete selling help to increase your profit.

There's one answer which fills both requirements—**ARMSTRONG**. The Armstrong furnace line is complete in every detail, and Armstrong offers you complete selling help. It's the perfect profit combination.

Ask your Armstrong jobber to show you the new Armstrong spring and summer sales campaign material—it's a typical, but small, part of the complete selling help Armstrong offers. Take a look at some of the carefully-engineered, precisely-built Armstrong furnaces in his showroom. You'll see in a minute why we say a complete furnace line, plus complete selling help, equals more profit for you. You'll see why we say Armstrong fills *both* requirements.

Look to **ARMSTRONG** for leadership in warm-air heating.
 A complete line—COAL, GAS AND OIL



**NEW...A POSITIVE-ACTION LATCH
WITH REAL USER APPEAL**



PAT. APP.

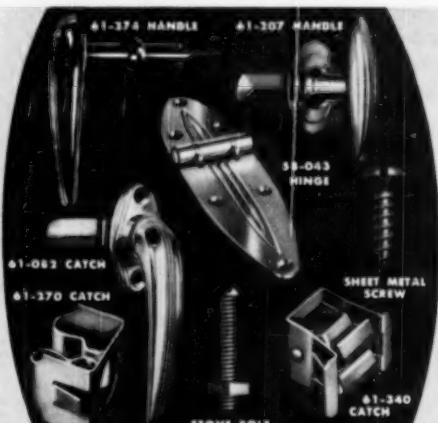


SNAP-IN TYPE 61-385

DESIGNED FOR METAL APPLICATIONS

- Opens doors automatically with touch of wrist, arm or elbow
- Easily applied to metal surfaces... saves time on the assembly line
- Unique latch design assures easy positive action... long life
- Fits right into your present production picture. Ask about it.

**ASK, TOO, ABOUT THESE OTHER
QUALITY NATIONAL LOCK ITEMS**



SUITABLE FOR USE ON...
AIR CONDITIONING EQUIPMENT
GAS HEATING UNITS • STOKERS
HUMIDIFIERS • OIL BURNERS
SPACE HEATING UNITS

NATIONAL LOCK COMPANY
ROCKFORD • ILLINOIS

WRITE US FOR FULL INFORMATION



SALES SENSE

By JACK BEDFORD

Salesman who was a stranger in the territory stepped up to a gorgeous girl on the street, touched his hat courteously and said, "I beg your pardon, but I'm a stranger here. Can you direct me to your home?"

\$ \$ \$

Some people have tact, others tell the truth.

\$ \$ \$

Salesman Sam, who was called on to speak before a group of local merchants, said: "The human brain is a wonderful thing. It starts working the moment we are born, and never stops until we have to stand up to speak in public."

\$ \$ \$

Everybody is able to give pleasure in some way. One person may do it by coming into a room, another by going out.

\$ \$ \$

Traveling salesman who covers a heavy traffic route made this candid observation: "When a woman driver puts her hand out, you can be sure of one thing—the window is open."

\$ \$ \$

We all like a man who comes right out and says what he thinks—when he agrees with us.

\$ \$ \$

Foundations laid stone by stone build a permanent structure in selling and in living.

\$ \$ \$

The conductor was puzzled as he said, "Who on earth would want to steal a Pullman ladder?"

Just then the curtains parted and a little old lady poked her head through cautiously. "Porter," she said, "you may use mine if you like. I won't need it until tomorrow morning."

\$ \$ \$

Sales managers believe in law and order as long as they can lay down the law and give the orders.

\$ \$ \$

Insurance salesman, preparing an application for another salesman, said: "Do you want a straight life?"

Salesman: "Well, I'd like to be able to step out once in a while."

\$ \$ \$

Salesman's Sage made this observation: "A bargain is a sales transaction where two people are convinced that they each got the better of the other."

\$ \$ \$

Sales Sense is common sense wrapped up in sound selling strategy—a pleasing personality, a definite interest in customers' wants, and tested selling technique. This is what makes the cash register ring just a little louder and a little longer. Puts more money in a salesman's pocket, too!

These Amazing Features
make **SUN-RAY**
the Stand-Out Burner



Patented Combustion Head
Dual Carburetion
Automatic Oil Brake

Here is the burner that combines 3 great improvements to produce fuel savings up to 35%. It's this great combination in burner engineering that puts Sun-Ray Series "S" Burners at the top in quality, performance and unequalled dependability.

1—**The Patented Combustion Head** provides controlled atomization of oil and controlled flame to give complete combustion with greatest fuel economy. It raises CO, lowers stack temperature, requires less draft.

2—**Sun-Ray's Dual Carburetion** produces clean combustion, burning catalytic as well as straight distillate fuel oil with equal efficiency.

3—**Sun-Ray's Automatic Electric Oil Brake** assures instantaneous oil cut-off, without after-drip, soot and odor . . . helps eliminate pulsation.

These great features, combined with Sun-Ray precision engineering, Sun-Ray sales cooperation, catalogs, folders, newspaper mats and displays help make every Sun-Ray Burner easier to sell and stay sold. That's why today Sun-Ray is one of the fastest selling oil burners the world over.

Inquiries invited from boiler and furnace manufacturers.

A TYPE AND
SIZE FOR
EVERY BOILER
OR FURNACE

SUN-RAY
FULLY AUTOMATIC
OIL BURNERS

SUN-RAY MODELS
0.75 to 25
gal./hr. Series 115-1
0.75 to 6 gal./hr.

MARINE MODELS
0.75 to 25 gal./hr.



SUN-RAY BURNER MFG. CORP.

139-34 Queens Boulevard

Jamaica 2, N. Y.

AMERICAN ARTISAN, JUNE, 1950

FOR QUICK DELIVERY
AND LONG SERVICE...

**CHASE COPPER
GUTTERS, DOWNSPOUTS,
ACCESSORIES**

Here is a complete line of copper gutters, downspouts and accessories—all available from stock! For assurance of full weight and quality workmanship, look for the Chase trade-mark and the "16 oz." stamp on gutters, downspouts, heads, elbows, shoes, mitres, ends, outlets and caps. Also available: hangers, circles, clips, wall ties.

OTHER CHASE ROOFING PRODUCTS

CHASE THRU-WALL COPPER FLASHING provides 3-way bonding at a reasonable price—assures rapid drainage.

CHASE COP-O-TOP is a practical inexpensive copper membrane flashing for concealed sheathing, water proofing and damp-proofing.

THE CHASE LINE also includes sheet, roll and strip copper, copper step flashings, nails, rivets, soldering coppers, lead-coated coppers.

Mail the coupon below for booklet describing
Chase Copper Roofing Products.

CHASE
the Nation's Headquarters for
BRASS & COPPER

WATERBURY 26, CONNECTICUT
SUBSIDIARY OF KENNEDY COPPER CORPORATION



Chase Brass & Copper Co.
Dept. AA650, Waterbury 26, Conn.

Gentlemen: Please send your booklet, "Chase Copper Roofing and Roofing Products."

NAME _____ TITLE _____

FIRM _____

ADDRESS _____

CITY _____ STATE _____

Never Before All These Features in a Residential Size Gas Burner!



Lo-BLAST ECONOMITE

The "mighty mite" of conversion gas burners! All the famous design features of the larger Lo-BLAST Burners in a compact low-cost unit. Just check the features below—see why the Economite is *different and better*.

Power Burner Design. Perfect combustion, regardless of draft—a proved fuel saver. Safe and efficient for down-draft units. **Simple to Install.** Every Economite is factory tested on gas and shipped assembled.

Safe Operation. The Economite comes equipped with dependable, foolproof safety, burns less fuel than the ordinary burner. **Soft, Quiet Flame.** No "pop" when the Economite goes on or off—burns so smoothly you can hardly tell it's running.

Easy to Service. All parts are accessible—nothing in the fire box but the fire. Simplicity of design and durable construction reduce service to a minimum.

Long Lasting. Economites are constructed on the same principle as the larger Lo-BLAST burners, many of which have been in operation fifteen years without service.

Big Enough. Two sizes available: the #150 with a capacity of 75,000 to 150,000 BTU inputs is sufficient to heat the average 6 or 7 room home, and the #300, with a capacity of 150,000 to 300,000 BTU inputs for larger jobs.

Lo-BLAST offers capacities to 20,000,000 BTU

Leading gas utility companies and consulting engineers give full approval to this quiet, efficient burner. The patented Lo-BLAST system of power combustion assures maximum fuel economy.

Dealers: Write for Information



The Lo-BLAST Burner

**MID-CONTINENT
METAL PRODUCTS CO.**
1960 N. Clybourn Ave., Chicago 14, Ill.

INDUSTRY ITEMS

C. E. PORTER has been named general manager of the manufacturing division of Cronstroms Mfg. Co., Minneapolis, Minn.

Mr. Porter was formerly associated with Lakeside Aluminum Co. He will make his headquarters at 4225 Hiawatha Ave., home of the division.

SQUIRE HEATING SUPPLY CO., 249 E. Fifth Ave., Columbus, Ohio, held an open house on May 2nd and 3rd to celebrate the grand opening of the new business. Harold Squire, formerly general manager of the Ohio Furnace Co., is president of the firm.

On the occasion of the open house, 20 manufacturers set up displays in the Squire building. Over 200 heating men visited the company on the first day.



The Squire Show

The building which houses the company has 16,000 sq ft of warehouse area and is ideally suited to the operation of a heating supply business.

Other officers of the company are Donald E. Squire, vice president and warehouse manager; W. E. Young, office manager; Mary L. Glass, secretary; and Walter G. Squire, warehouse foreman. E. L. Wagstaff, N. O. Wagstaff and David R. Thomas, Jr. are district managers.

AUER REGISTER CO., 6600 Clement Ave., Cleveland 5, Ohio, announces that W. Harry Tonner has been advanced to the position of Assistant Sales Manager. Mr. Tonner, well known in heating and air conditioning circles, was formerly field sales representative, working out of the Cleveland office.

GENERAL FILTERS, INC., Detroit manufacturer of fuel oil filters, has completed and moved into the new addition of their plant. This most recent expansion of their plant doubles the size of previous facilities and is the second building program completed since the war.

All of the space provided by the new addition will be devoted to manufacturing and shipping. One feature was the installation of a large and completely sealed off paint spray booth. In addition, the enlarged space will permit the building of a new engineering department and enlargement of the general office facilities. Both of these projects are now under way.

General Filters officials feel that this new building program will enable them to keep abreast of their enlarged demand and to insure better, more efficient service to their jobbers.

Randall
self-aligning
self-lubricating
**PILLOW
BLOCKS**

GENERAL SERVICE
PILLOW BLOCK



*Your assurance of
quieter-longer lasting
service . . .*

You make sure of smooth, quiet operation for the life of your equipment when you specify Randall Pillow Blocks. Only Randalls have self-lubricating, graphited phosphor bronze or sintered bronze bushings in self-aligning, wool-felt-packed oil reservoir housings. You can afford Randall quality since the line is very complete and offers a type and size that is exactly right for the job. Write for Catalog 49 with complete data.

PILLOW BLOCKS
BUSHINGS
BAR STOCK
SHEET LUBRICATOR

RANDALL GRAPHITE BEARINGS, INC.

207 E. Market Street,

Lima, Ohio

GRAPHITED BEARINGS
THRUST WASHERS
SABBITS
SAFETY COLLARS

SOUND REASONING



WHY

SNO-BREEZE AIR COOLERS

SELL FASTER AND GIVE
LASTING SATISFACTION
TO CUSTOMERS



\$ 41 YEARS of air conditioning leadership.

\$ Finest tooling and modern machinery with latest production techniques assure top quality at lowest prices. The best air cooler value money can buy.

\$ A model for every requirement, the most complete line of sizes and models ever offered the trade.

\$ Sound backing with eye appealing, confidence building, modern and complete sales aids.

\$ Dynamic nation wide newspaper, radio and magazine advertising.

\$ Advertised in LIFE, TIME, BETTER HOMES & GARDENS, HOUSE BEAUTIFUL and others. Heard on coast to coast radio networks.

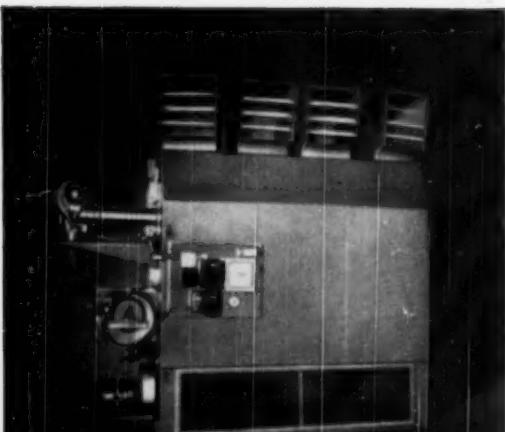
Why not sell the fastest moving, profit making winner — SELL SNO-BREEZE.

**PROVEN BEST BY FIELD
PERFORMANCE TESTS**

Write today for free literature. SEPT. 23.

PALMER MFG. CORP., Phoenix, Ariz.

**FIRST
PRIZE**



**The Easy-to-Install
Industrial Heating Plant**

AIRTHERM

**Oil* or Gas Fired
Space Heaters**

Airtherm space heaters are easy to install. They are furnished complete with all operating and safety controls for automatic operation. Airtherm space heaters have a steel combustion chamber lined with castable refractory for simple maintenance and long life.

Available in nine models ranging from 650,000 to 1,950,000 BTU per hour output in floor mounted or suspended types.

*For detailed information write for
Catalog 802*

*Approved by Underwriters' Laboratories

AIRTHERM MANUFACTURING COMPANY

706 South Spring Ave.

St. Louis 10, Mo.

OVER 100 OF THE LEADING WARM air heating dealers and installers in the Buffalo area attended an all day meeting held by the Schaefer Warm Air Heating Equipment Company in the Hotel Sheraton.

Jack Allen, manager of Schaefer, introduced the speakers of the day and kept the meeting rolling at a rapid rate.



Schaefer meeting

The entire session was devoted to putting information into the hands of the warm air heating dealers in the Buffalo area on equipment they were selling and tools available to assist the sale.

The complete line of Armstrong warm air furnaces, gas burners and oil burners was presented in detail by H. G. Hays, sales engineer for Armstrong, with emphasis on the design and construction features.

One of the most active discussions was held on application engineering problems with many reporting fine results with Continuous Air Circulation.

Advertising Material and Sales Helps were explained by W. S. Moellering, Armstrong sales manager.

The meeting was highlighted by a talk by L. G. Hickok, vice president and general manager of Armstrong on "A Plan for Business."

The Schaefer company under the direction of Jack Allen, has in the last two years become one of the largest and most active distributors of warm air heating equipment in western New York.

THE ANNUAL SALES MEETING of the Nu-Way Corp. was held in Rock Island, Illinois during March. O. K. Gipple, sales manager, conducted the meeting attended by company representatives from all over the United States.

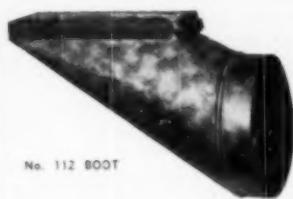
Features of the meeting included the presentation of Nu-Way's sales and advertising plans for the spring and fall seasons.

The Nu-Way representatives witnessed actual tests made on new equipment in the company's laboratory.

H. E. Doyle, plant manager presented special instructions in the servicing of Nu-Way oil burners.



Nu-Way Sales Meeting



No. 112 BOOT



No. 110 BOOT



No. 113 BOOT



No. 111 BOOT



← No. 164 End of Line
Center Takeoff. For use
with 2 No. 163.



No. 160 Takeoff Round
Pipe to carry branch in
or below joist. →

GRAY "Snap-Rite" FURNACE PIPE AND FITTINGS AIR CONDITIONING PIPE AND FITTINGS

A complete line of Gravity and Forced Air Pipe and Fittings with our positive "SNAP-RITE" Lock for quick assembly and erection. Wall Stack and Fittings in 3 $\frac{1}{4}$ " standard depths. Trunk Pipe and Fittings in 8" standard depths.

Write for Catalog

GRAY METAL PRODUCTS, INC.

30 Carlton Street
Rochester 7, New York

Over
50,000,000 ft.
in service!

For more than 20 years, Johns-Manville Transite® Flue Pipe has proved its dependability and economy in thousands of installations throughout the country. To date, there have been more than 50,000,000 feet of this asbestos-cement pipe used for flue pipe installations!

For complete details, write for Folder TR-84A. Address Johns-Manville, Box 290, New York 16, N. Y.

*Reg. U. S. Pat. Off.



Johns-Manville TRANSITE FLUE PIPE
FOR VENTING DOMESTIC GAS-BURNING APPLIANCES

TWO APPOINTMENTS of new sales engineers have been announced by Harry C. Gurney, sales manager of Surface Combustion Corp., Toledo, Ohio. S. F. Schultz has been given the Michigan territory and Harold E. Pryor, the Dayton, Ohio territory.

Mr. Schultz is a graduate of Northwestern University and has had extensive experience in the heating field. His previous connections include affiliation with the sales department of the Michigan Consolidated Gas Co. and the People's Gas Light and Coke Co., Chicago.



S. C. Schultz



H. E. Pryor

He will work with Abner Baker, Surface Combustion district manager, in the distribution of the company's complete line of equipment through the Michigan territory dealer organization.

Mr. Pryor will be located at 238 Lafayette St., Dayton, and will assume duties of selling the complete line of products, in close association with F. S. Hamer, district manager.

His previous experience includes engineering work for the Boeing Airplane Co. in Seattle. Mr. Pryor is an

engineering graduate of Purdue University.

TO HELP SATISFY the current demand for metal sheet, A. M. Byers Co. will again make wrought iron sheets available, it has been announced. These have not been on the market since the war.

It is understood that flat and corrugated hot rolled annealed wrought iron sheet, black as well as galvanized, from 8 gauge to 22 gauge, will be available.

OVER 100 COMBUSTIONEER DEALERS and wives gathered at the factory, Springfield, Ohio for a special dealers preview on April 4, 1950.

The purpose of the meeting was to introduce the dealers to the new Combustioneer oil burners and oil fired furnaces. The meeting started at 9:00 a.m. and the guests were welcomed by Georges Roudanez, manager of the Combustioneer Division.



Combustioneer Meeting

The following speaker was C. P. Meredith, executive vice president of The Steel Products Engineering Co., who welcomed the dealers and described the facilities

NOW AVAILABLE by reader request

A complete reprint booklet of the series of articles published in the August, September, October, and November issue of American Artisan—

Heating Basementless Houses with Warm Air
by S. Konzo, W. R. Hedrick, and J. M. David

A manual for designing and installing perimeter warm air heating systems—a method which features a combination of radiant and convection heating.

Step by step, each important consideration in the application of warm air heating in basementless houses is fully described in detail by heating men in a manner that can readily be followed and applied by the warm air heating industry.

Price—\$1 Per Copy

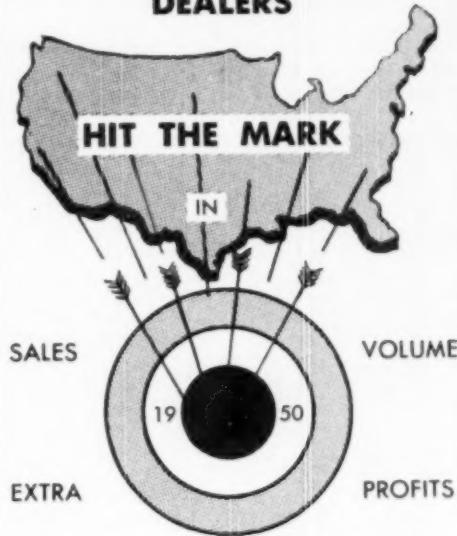
AMERICAN ARTISAN

6 No. Michigan Ave.

Chicago 2, Ill.

ALTON

DEALERS

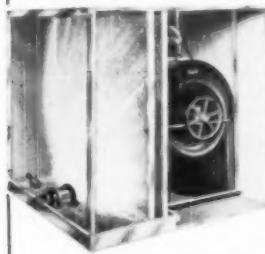


In these representative cities, sales volume indicates that ALTON Air Washer-Evaporative Coolers are a SMASH HIT! Qualified dealers everywhere can equal or better these records according to their initiative.

HERE'S WHY

ALTON Air Washer-Evaporative Cooler offers these advantages—

- 1—Low initial cost.
- 2—Low operating cost.
- 3—All galvanized steel cabinet.



4—TURBOSPRAY
water assembly
(Exclusive)

5—Double Mat
arrangement—
"drier air"

6—Constant
Cooling
efficiency

To Qualified dealers, everywhere ALTON offers unusually liberal opportunities for TOP sales volume—WRITE or WIRE TO-DAY—for FULL Details.

ALTON MFG. CO.

1112 ROSS AVE.

DALLAS, TEXAS

WISE-GRIP

INDUSTRY'S BIG, TOUGH
ALL-ALLOY STEEL

Sheet Metal TOOL



- Provides a Powerful Non-Slip Grip
- Does More Perfect Forming
- Eliminates Tiresome Hand Gripping
- Adjustable to Non-Locking Action
- Has Extra Deep Throat



Here it is! The New Vise-Grip Sheet Metal Tool with a thousand uses! A compact fistful of super power; double-lever action exerts tremendous pressure and Locks the jaws to work with a grip many times greater than ordinary tools. Eliminates tiresome, hand-gripping. Easily adjusts to non-locking action.

BETTER JOBS WITH EASE and SPEED

Makes light work out of heavy jobs with ease and little effort. TOPS in a hand tool for bending sheet metal edges, locking templates to sheets, holding metal strips for welding, working inside stacks, bending lead etc. Guaranteed by the makers of the famous VISE-GRIP Wrenches. 8-in. long. Jaw width 3 1/8 in. Throat depth 1 1/4 in. No. 8—8-in. VISE-GRIP Sheet Metal Tool—

Only

\$2.95

VISE-GRIP Wrenches

The original Locking Wrench, now improved. Involute Jaw Curve holds all shapes. Has Knurled Jaw Tips, Thin Nose and Wire-Cutter.

No. 7W, 7"	with cutter	\$2.25
No. 10W, 10"	with cutter	2.50
No. 7C, 7"	without cutter	1.85
No. 10C, 10"	without cutter	2.25

Order from your supplier

Manufactured

PETERSEN



MFG. CO., INC.

Dept. AA-6

Only by

DeWitt, Neb.

in engineering and equipment that made possible the new equipment. Following this were demonstrations of the new burners and furnaces.

The program included a tour of the plant with luncheon and dinner served at the Shawnee Hotel.

APPOINTMENT OF JAMES H. LAHEY as midwest representative of the Industrial Division of Webster Electric Company, is announced by B. T. Wiechers, division sales manager. Mr. Lahey will contact manufacturers, distributors and dealers in connection with the sale of fuel units, transformers and Thermodrive variable speed controls. With headquarters in Racine, he will cover all the midwest except Wisconsin.



J. Lahey



L. McCord

FRANK P. GIBBONS, sales manager of the Viking Air Conditioning Corp., Cleveland, Ohio, announces the appointment of Lowell A. McCord, Webster Groves, Missouri, as district representative in the Missouri-Indiana area. Mr. McCord will also travel in part of Illinois and Kentucky.

A graduate of Missouri State Teachers College, Mr. McCord brings wide experience in heating and insulating sales to his new position. Prior to working for Viking, Mr. McCord was associated with the A. G. Brauer Co., St. Louis, as an industrial insulation and furnace equipment representative. An army veteran, he was also associated with Johns-Manville as home insulation salesman and district engineer.

He will work closely with engineers of furnace and air conditioning manufacturers on the application of Viking humidifiers and blowers to their products. He will also service jobbers in the territory for Viking blower-filter package units and window and attic fans.

THE 6TH ANNUAL OPEN HOUSE and Trouble Shooting School of Sid Harvey, Inc., of Valley Stream, N. Y., has been announced. Dealers, servicemen and jobbers in oil burner parts are invited to spend a day at Sid Harvey's during the month of June. There will be a guided tour of the plant, with demonstrations of oil burner service problems and their solutions in the various departments of the rebuilding factory. A special feature, new this year, will be a demonstration of the relay analyzer. This instrument gives a visual picture of every function of every combustion relay in common use. This should be a material aid in the diagnosis and correction of relay problems. Dealers are invited to bring doubtful relays for a free check. Along with this demonstration will be a discussion of how to correct hum, chattering, on-and-off operation and other relay troubles.



royal jet-flow

fits any pocket-book

ROYAL JET-FLOW selected for "Better Homes and Gardens" \$20,000 Five Star Home No. 2004 - Designed and built by Cliff May.

ROYAL JET-FLOW selected for 451 homes for Negroes built by Folmar-Finn in Montgomery, Alabama. House and lot complete sells for \$3200.

Write to Royal Heaters, Inc., Alhambra, Calif., for complete information on AMERICA'S OUTSTANDING HEATING UNIT - THE ROYAL JET-FLOW.

APPTON SUPER HAMMERS

Seal Pittsburgh Lock Seams
With Speed and Smoothness



Appton Hammer Sealing Pittsburgh Lock Seam

In addition the APPTON SUPER HAMMER can be used for chipping, drilling, gouging, trimming, small riveting, cutting, sealing, caulking, etc.

This high speed hammer actuates on contact with work—develops no recoil (kick)—force of blow adjustable—economical air consumption—weighs 4½ pounds.

The APPTON SUPER HAMMER is a popular labor saving pneumatic tool with sheet metal fabricators throughout the country.

For information write

BURGESS THOMAS COMPANY

Distributors for the Brown-Appton Company

BLOOMFIELD, NEW JERSEY

General Sales Office—80 Broadway, New York 5, New York

FOR PROFITABLE AND EASY WEATHERSEALING



FOLLANSBEE SEAMLESS TERNE METAL

Every house needs weathersealing and every flashing, coping, conductor in modern housing is another opportunity for you to make a nice profit by installing Follansbee Seamless Terne Metal.

Don't overlook these profitable weathersealing jobs on new construction and on repair contracts. Time-proved Follansbee Terne Metal is easy to handle and apply—its well-known durability assures customer acceptance.

Industrial and commercial buildings need weathersealing, too. When you make your regular check-up on roof maintenance contracts be sure to show samples of Follansbee Terne Metal to architects and engineers. Tell them about the trouble-free Follansbee Terne Roofs in service fifty years or more. That's the direct route to profitable weathersealing and roofing contracts.



Drop us a note and we'll tell you who handles Follansbee Terne Metal in your territory.

FOLLANSBEE STEEL CORPORATION

GENERAL OFFICES, PITTSBURGH 30, PA.

COLD ROLLED STRIP • SEAMLESS TERNE ROLL ROOFING
POLISHED BLUES SHEETS • ELECTRICAL SHEETS

Sales Offices—New York, Philadelphia, Rochester, Cleveland, Detroit, Milwaukee, Sales Agents—Chicago, Indianapolis, St. Louis, Kansas City, Nashville, Houston, Los Angeles, San Francisco, Seattle, Toronto and Montreal, Canada. Plants—Follansbee, W. Va.

FOLLANSBEE METAL WAREHOUSES
Pittsburgh, Pa. • Rochester, N.Y. •



Fairfield, Conn.



turn shop time into profitable job time!

Cut trunk-size on average job 6 to 10 inches at plenum — save material, reduce inventory, SAVE MONEY!

EVERY job is a lot more profitable for you — and a lot faster and easier when you use Mueller Climatrol standardized fittings with our patented take-offs. Your men spend more time on jobs instead of in the shop. And each job takes less time.

You don't have to worry about complicated estimates, uncertain costs, and tricky, time consuming balancing. That's why more and more sheet metal men plan their jobs quickly and easily on Mueller Take-off estimate sheets — and complete them faster and more profitably with Mueller Climatrol standardized and patented fittings.

Complete stocks of every fitting you'll need are available at all times. All conform to the simplified practice recommendations of U. S. Bureau of Standards.



Tear out this coupon
and mail today for the 3 Big Keys
to Profit on Pipes and Fittings.



L. J. MUELLER FURNACE CO.
2161 W. Oklahoma Ave.
Milwaukee 15, Wisconsin

Please send me (1) a Pipe and Fittings Catalog (2) a Mueller Take-off estimate sheet and (3) a free copy of the Air Distribution Institute Booklet "More Profits — More Sales".

Name _____

Company Name _____

Company Address _____

City _____ () State _____

News Round-up

(From page 62)

New Legislative Committee

ANNOUNCEMENT HAS BEEN MADE by the National Warm Air Heating and Air Conditioning Association of the appointment of a new Legislative Committee. President Clarence Franke of the association named the following members of the group: Charles L. Sapp, Farquhar Furnace Co., chairman; Wm. Dulle, E. E. Souther Iron Co.; C. J. Low, Jackson & Church Co.; Harold Mutz, Peerless Foundry Co.; and Ross Wallis, Meyer Furnace Co.

Function of the committee will be to assist in protecting and advancing the best interests of the association and industry in connection with local, state, and national authorities where a new warm air heating code is being considered. Its attention will also be directed to bringing its influence to bear where present codes are not in the best interests of the public and consequently the industry.

GAMA 1950 Exposition

GAS APPLIANCE MANUFACTURERS Association announced that it will hold its customary biennial Exposition of Gas Appliances and Equipment at the Atlantic City Convention Hall from October 2nd to 6th, 1950.

According to Harold Massey, assistant managing director of GAMA and director of the event, "The Exposition is held in connection with the regular annual convention of the American Gas Association which will be held in Atlantic City at that time.

"This exhibition has always been the largest of its kind held and we anticipate that the 1950 show will surpass that of the 1948 exhibition both in space reserved and in number of exhibitors."

Steel Production Rises

STEELMAKING FURNACES were scheduled to make more steel than ever before in the week of May 22, American Iron and Steel Institute announced. This was the sixth consecutive week of production at 100 per cent of capacity or better.

The furnaces were to be operated at an average of 101.8 per cent of capacity, producing 1,940,600 tons of ingots and steel for castings. That was an increase of one-half point from the previous week's 101.3 per cent of capacity, which was equivalent to the production of 1,931,000 tons of steel. During April furnaces were being operated at an average of 100.3 per cent of capacity, equivalent to 1,912,000 tons of steel. One year ago, they were being operated at an average of 94.1 per cent of capacity, equivalent to 1,734,700 tons.

The Institute's report is based on reports from companies having 94 per cent of the steel capacity of the industry.

A.G.A. Convention Committee Plans for Largest Convention on Record

PLANS FOR A CONVENTION PROGRAM that will attract more than 10,000 gas industry members and dealers to Atlantic City, October 2-6, 1950, were discussed at a meeting of the American Gas Association General Convention Committee under the chairmanship of George E. Whitwell, vice president, Philadelphia Electric Co.

"I Wouldn't Be Without—

SUPER SAW
AIR COOLED
PATS. PEND.

That's what a user told us at the recent convention and exhibit of The National Association of Master Plumbers held in the Civic Auditorium, San Francisco, California, May 17-20, 1950. He then continued: "Now that I have used SUPER-SAW it's a 'must' in my work. I find it saves much time and therefore quickly pays for itself."

Workers in the air-conditioning, heating, and sheet metal lines have told us the same thing. They have found how quickly SUPER-SAW will cut through practically any type of material, thus saving as much as 75% in "roughing in" time.

THIS IS



SUPER-SAW is carried by better dealers in the U. S. A. and Canada and—upon request—we'll gladly send you free of cost an illustrated booklet.

RCS TOOL SALES CORPORATION

Department AM Chalstrom Building, Joliet, Ill.

Why the

Norman SOUTHERNER
ORIGINAL COMPACT
HORIZONTALLY DESIGNED FORCED-AIR GAS FURNACE

was selected to heat "The Lobster Box"

"The Lobster Box" in Long Island City presented a tough heating problem. There was no space available in the restaurant part, and every foot of space in the cocktail bar and lounge was at a premium.

Ruckel's Modern Home Equipment, Bronx, N. Y., solved this heating problem by installing three Norman Southerner FUB-100's (100,000 BTU each). The horizontally designed Southerner fits in attic, closet, basement, utility room or under floor where there's 16 to 21 inches clearance. Fully approved by AGA. Performance-proven for over 4 heating seasons.

Here's what John Cepollaro, proprietor of "The Lobster Box," says about his Norman Southerner forced-air heating system: "You certainly solved my problem by using the Southerners in the crawl space, because I couldn't spare any room in the restaurant. The Southerner in the cocktail lounge is out of the way, too. Thanks for a good job."

**Send Today For Your Free Copy
Of This Helpful New Booklet**

This new booklet gives you complete details and specifications on the Norman Southerner. It shows you how this compact horizontal gas furnace solves tough heating problems. Mail the coupon now for your free copy.



3 Norman Southerner FUB-100's (size 21 1/4" x 23 1/2" x 52 1/2") are installed in "The Lobster Box."

4 popular sizes—40,000, 60,000, 80,000 and 100,000 BTU
10 Year Factory Guarantee. Burns natural, mixed,
manufactured and LP gas



NORMAN PRODUCTS CO., Dept. 24
1148 Chesapeake Ave., Columbus 12, O.
Please send me your free booklet "This Compact
Forced-Air Central Heating System Saves
Valuable, Costly Floor Space."

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____

Please Attach To Your Letterhead

Mr. Whitwell has been active in association work for many years and he and his committee are confident that the 1950 annual convention and exhibit will draw the largest attendance in the history of the association's conventions.

Arrangements are under way for presenting a group of outstanding speakers from within the industry and from outside circles to highlight the general sessions. A list of topics is being compiled that will include subjects of interest to every branch of the gas industry.

The following general meeting plan has been approved: a joint session of the Manufactured and Natural Gas Departments on Monday morning; a general session on Monday afternoon; a general session on Tuesday morning; sectional meetings Tuesday afternoon and Wednesday morning; Wednesday afternoon open for exhibit visits; a general session on Thursday morning and sectional meetings on Thursday afternoon.

Haddon Hall has been designated as headquarters for the Accounting Section; the Ritz Carlton Hotel will be headquarters for the Residential Gas Section, and the Industrial and Commercial Section; and the Dennis Hotel will be headquarters for the Operating Section.

Air Pollution Conference

INDUSTRY, RESEARCH, AND EDUCATIONAL organizations, and State and municipal governments were represented by 500 authorities on air pollution and related subjects at the recent U. S. Technical Conference on Air Pollution. The conference was called by Secretary

of the Interior, Oscar L. Chapman for May 3-5 in Pittsburgh, Penn.

A fairly complete coverage of air pollution topics was obtained at the meeting. James R. Garvey, Bituminous Coal Research, Columbus, Ohio, who played a major part in BCR's development of smokeless coal burning heating equipment said that principles of burning coal smokelessly in residential heating equipment have been established. Successful smokeless space heaters have been designed and are being sold commercially, he said. Sample furnaces and boilers have been built which incorporate the same principles of smokeless combustion. They are currently being field tested, and it is expected that they will later join the heaters on the commercial market.

Strong and Son—

(From page 67)

The Stronges have always made use of a furnace cleaning campaign. Every furnace to be cleaned is carefully inspected by salesmen to see if the furnace is in need of repair. If repair or replacement should be needed, the home owner is told about it and a definite attempt is made to sell the necessary service.

This company has operated on a gross profit that allows a very adequate return. It is interesting that advertising expense is included in overhead. In other words, rather than a selling expense, Mr. Strong considers advertising a constant part of the expense of doing business.

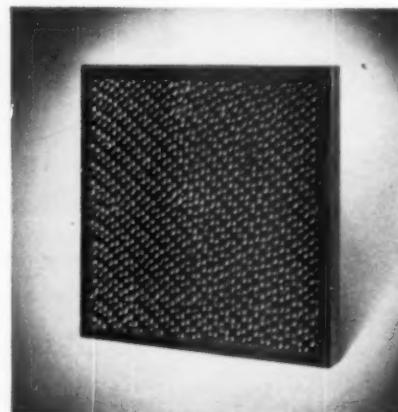
From 5 to 18 men are kept busy on installations, depending on the season.

DETROIT AIR FILTERS

These are the best . . . these are the money-makers . . . these are Detroit Air Filters with WICK-ACTION! They'll help you secure and keep satisfied customers by the simple method of giving superlative service under the most trying conditions.

Detroit Air Filters can do this because with WICK-ACTION the passageways are kept open, allowing more air to flow through the filter which gives more efficient operation of any air conditioning unit.

We'll prove it, too . . . write us today for more complete information.



PROVE IT!

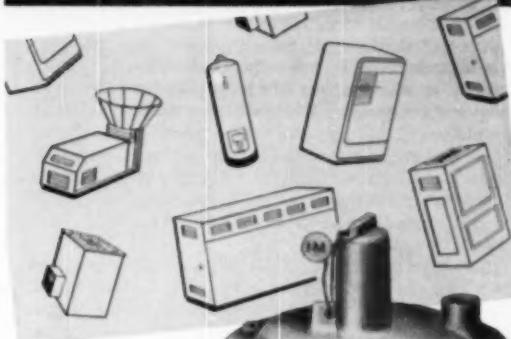
Test a WICK-ACTION
Filter Yourself

DETROIT AIR FILTER CO., INC.

P. O. Box 407

Woodstock, Illinois

FOR trouble-free Gas Appliances



USE THERMAC



Appliance Regulators

1. Provides constant pressures, constant BTU input and constant flame height.
2. Eliminates pilot light failure due to fluctuating pressures. Assures proper operation of automatic controls.
3. High capacity, close control. Low maintenance.
4. Aluminum alloy, light weight. Sizes: $\frac{1}{8}$ " to $2\frac{1}{2}$ " IPS.

APPLIANCE
BUILDERS
CHOOSE
THERMAC

Millions of THERMAC Gas Appliance Regulators are in service today on gas furnaces, space heaters, conversion burners, refrigerators, water heaters, air conditioners, boilers, dryers, etc. More and more manufacturers are going to THERMAC simply because THERMAC Regulators are *DEPENDABLE* 24 hours a day under all operating conditions. The reputation of a fine appliance depends in no small degree upon the behavior and control of its gas regulator. Play safe. Use THERMAC—a product with wide national acceptance.

SEND FOR complete literature and prices

THERMAC
COMPANY

800 East 10th Street • Los Angeles 2, Calif.

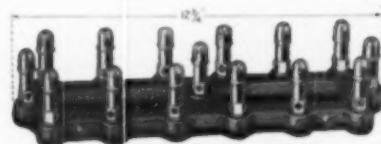
"20 years experience in building gas controls."

Yes — BARBER
Burners are **STILL** the
Finest You Can Buy!

Appliance Burner No. L-10. Particularly adapted to very long, narrow combustion chambers. The units may be assembled end-to-end to make a long row of jets, or side-by-side to make a bank of burners. Will give uniform heat distribution.



No. L-50



Appliance Burner No. SC-151

The record shows that Barber Burner units, for gas appliances of all kinds, have been given preference for over 30 years by hundreds of leading appliance manufacturers. In engineering design, laboratory facilities, and production experience—Barber has what it takes to provide the most efficient, economical units, properly adapted in size, shape, and all other respects, to each individual purpose. For natural or LP gas, Barber Burners are first choice with gas experts.

Likewise, Barber Automatic Gas Conversion Burners, tailor-made for all furnaces and boilers, are recognized as TOPS in combustion efficiency and trouble-free service. No amount of dolled-up appearance or complicated refractory construction, or "spreaders", has ever been successful in offsetting the superior performance of Barber patented Impinged Jets, intense direct flame application, and vacuum pre-mixture combustion. For the utmost in gas burner satisfaction—you can always rely on any product bearing the Barber name.



Barber 324-B round
Conversion Burner
with improved controls, enclosed in
streamlined hood.
Tested and certified
by A.G.A. Testers
under new listing re-
quirements.

Write for latest Catalog showing many types of
Burners for Appliances, Gas Conversion Burners
for Furnaces and Boilers, Regulators, and Controls.

THE BARBER GAS BURNER CO.
3704 Superior Ave., Cleveland 14, Ohio

BARBER *Automatic* **JET GAS BURNERS**

There are several valuable lessons that can be learned from this successful operation.

First, some type of advertising is usually necessary to the success of any heating or sheet metal shop. Now, the type of advertising depends wholly on the dealer, his experience in the town and in the business, and the size of town. A new dealer in a large town would be wise to spend as much on advertising as possible in order to gain recognition and produce inquiries. On the other hand, an experienced dealer in a small town, may find such things as newspaper advertising wasted. But, that dealer in a small town benefits from word of mouth advertising. If he performs good installations and gives good service it doesn't take long for everyone in town to know about it. If he performs poor work the people in town will hear about it just as quickly. This experienced dealer is advertising by spending more money on giving fine installations and giving good service.

Another lesson that can be learned is that consistency, above all other things, pays off in an advertising program. Mr. Strong advertised for a good many years before the advertising consistently brought in 3 to 5 inquiries per ad placed. This will be true whether you use newspaper, radio, direct mail, telephone canvassing, or any other type of advertising or promotion.

A hard hitting merchandising program is the most vital part of any dealer's operation. That, followed by good installations and service, is the key to success of the majority of top dealers in the industry.

Markstein—

(From page 70)

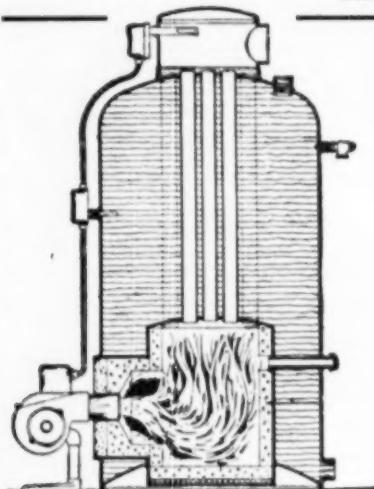
Women now outnumber men. There are now estimated to be 1 million more females than males in the U. S. today. This was never true before, although it has been true in more foreign countries for a long time. Waves of male immigration formerly kept the male population larger, but now the women have caught up. They'll stay in the majority from here on out, barring major catastrophes or changes in national policy which would once more let down the immigration bars.

These are not the exact census results. They represent what statistical experts expect the census to show. These experts judge from spot surveys made during the decade between full-scale censuses, and from vital statistics data.

The national figures will be interesting to manufacture of *Indoor Comfort* equipment. Particularly so will be the data on kinds of homes, ownership, and types of heating used in the homes. But what counts for the individual dealer is not the national data, but the statistical picture of the town, county or state in which he operates.

By writing to the Bureau of the Census in Washington, or to its local office in your city, you can be put on the mailing lists. Not all reports will be free; there is often a small charge which is based upon the bare cost of printing each report in the Government Printing Office. The Bureau of the Census will let you know about them as they are issued. You can order from

THERE'S AN AQULUX MODEL AND SIZE FOR EVERY HOT WATER NEED!



This is the AQULUX 225-VS Model

Capacity: 270 g.p.h. of 100° Rise
225,000 B.T.U. output, 230 gal. Self Storage

AQULUX WATER HEATERS

give you more gallons of Hot Water for every fuel dollar!

You can sell and install Aquulux Water Heaters with confidence that their performance will measure up to expectations. In private homes, factories and great public buildings all over the world, they have been given the acid-test of time under the most varied and difficult conditions.

Few heating units can match their dependability . . . and still fewer can equal their fuel-saving efficiency. If you have a water-heating problem, it will be well worth your time to check up on the superiority of these famous Aquulux Water Heaters. If you will tell us what you need, we will gladly furnish you with helpful detailed information.

Johnson Oil Burners.....
S. T. JOHNSON CO.
940 Arlington Ave., Oakland 8, Calif.
401 No. Broad St., Philadelphia 8, Pa.

Builders of fine Oil Burner Equipment since 1903

UNO VENTILATORS



"SURE AS SUNRISE"

PARDON THE PUN BUT DO UNO?

1. Our turbine ventilators have from 50-100% greater air exhaustion than even more expensive stationary types when operated under the same conditions.*

2. UNO'S are the original internally braced turbine and the only one with spindles running in chrome steel and bronze bearings. Oil lubricated from above there is no grease to congeal. No cold weather can bind these.

*12" stationary vents give 400-500 CFM (10 mph, 20°F 40 foot stack)

Uno 12" turbine gives 780 CFM @ mph, 10°F 10 foot stack

Your ventilation dollar can buy no greater value than this moderately priced unit.

Write for literature



Jobbers throughout the country

UNO VENTILATOR CO.

P.O. BOX 1031

SAUGUS, MASS.

SPEEDY Power Twins SAVE Assembly Time!



BUY VAN DORN HOLGUNS for drilling lead holes, bolt holes and holes to be tapped. Drive twist drills up to $\frac{1}{4}$ " diam. in steel, wood augers up to $\frac{1}{2}$ " diam. in hardwood, Hole Saws, small wire brushes for cleaning and burnishing.



VAN DORN HOLGUNS* and SCRUGUNS* make a perfect team for speeding up metal frame assembly work because: (1) Their compact, lightweight, well-balanced design makes them easier to handle, reduces operator fatigue, gets them into hard-to-reach spots. (2) Their full-powered Van Dorn-built motors insure continuous, trouble-free production. (3) Their extra-tough gears, shaft and chuck spindles and husky housings give you extra years of service. Call your nearby Van Dorn Distributor for a profitable demonstration of these cost-cutting tools. Write for free catalog to: THE VAN DORN ELECTRIC TOOL CO., 782 Joppa Road, Towson 4, Md.

*Trade Mark Reg. U. S. Pat. Off.

For Power Specify



PORTABLE ELECTRIC TOOLS

(DIV. OF BLACK & DECKER MFG. CO.)

DRILLS • SANDERS • BENCH GRINDERS • PORTABLE GRINDERS

Our New
Handy
Pipe
Catalog
No. 53
Is Now
Ready.
A
Request
Will
Bring
Your Copy.
F. Meyer
& Bro. Co.
Peoria,
Illinois.

the Superintendent of Documents (Washington 25, D. C.) or from the local city (city or state) Regional office of the United States Department of Commerce.

The chances are that your Chamber of Commerce will have these statistics as soon as they are issued. Many *Indoor Comfort* dealers use the libraries of their chambers in place of accumulating the data for themselves.

The facts about homes will be of particular interest. The data on heating methods employed by home owners will have obvious use.

But nearly every fact brought out by the 1950 census can be a help in planning for sales, budgeting money, slanting advertising, finding out who and where the prospects are, choosing emphasis, and making long range management plans.

Pensions—

(From page 76)

be provided by the company's plan. For example, last year both the Ford Motor Co. and the Inland Steel Co. non-contributory plans allowed for full deduction of primary social security benefits. However, the Inland Steel optional plan which is on a contributory basis and offered as an alternative to employees who wanted it, does not allow for reductions for social security. Where a plan promises only the pension benefits that can be bought by the accumulated funds, the agreement can specify that company contributions will be decreased as social security benefits or taxes are increased.

Pensions that are still in the planning stage might very well be held up until the legislative picture on proposed Congressional social security commitments is clear. Where pressure, either from unions or employees makes it impossible to postpone, some device for later adjustment should be achieved. That may be accomplished under a formula that guarantees a benefit minus social security, like the non-contributory Inland Steel plan rather than plus social security like the Inland Steel's optional contributory plan. Under the minus method, adjustments can apply all around—including the pensions currently paid workers already retired. On the other hand, a plus formula forecloses the advantages of an increase in social security benefits without obvious reduction of promises or commitments. Moreover, this reduction can't apply to benefits already accrued to working or retired employees.

Union pressure will inevitably aim at applying these cost savings to increase benefits. If this happens, the company should be in a position to show, if it wants to, that the net retirement benefit is adequate in terms of employee need and commitments of other companies. And funds released from company pension commitments by social security changes will be used in maintaining the company's competitive position and improving productivity. That's another way of saying greater job and wage security.

Eligibility Factors

What's right as a set of requirements for a particular company depends on the objectives of its pension plan and the costs it is prepared to carry. In setting en-

AIR-FLO
AUTOMATIC
CEILING SHUTTER
FOR ATTIC FAN

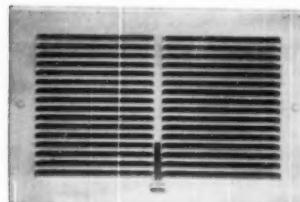
Built so they can be installed practically flush with the ceiling, AIR-FLO Ceiling Shutters provide a refined, finished appearance. Their unique design also blends with any decoration, eliminating need for painting, and no grille or winter cover is required. Furnished in 8 different widths, and in lengths up to 10 feet. No operating mechanism shown. Built-in Tumble Oak. Meets fire underwriters requirements.

WRITE FOR NEW CATALOG 43-C

Illustrations and details of the complete AIR-FLO line.

AIR CONDITIONING PRODUCTS CO.
2340 W. LAFAYETTE BLVD. • DETROIT 16, MICH.

SAVE TIME
By Using →



AND
WATCH
YOUR
PROFITS
INCREASE

Here's A Single Valve Register with the Valve Hinged at the BOTTOM!! For use in Basementless Homes where the Conductor is Dropped from above the Register. Ask your Supplier, or Write:

THE A & A REGISTER CO.
8327 Clinton Rd. Cleveland, Ohio
Geo. G. Auer, Pres.



Picture of Profits!

Of course, our fittings are fabricated with extreme care and delivered to you with a minimum of delay—and when they are "Made-Rite" you know the job will be well done.

We are ready and anxious to deal with you and you'll be pleasantly surprised at the completeness of our line and dependability of our service.

We solicit inquiries on slitting of metal up to 36 inches wide and 16 gauge and lighter.

"Made-Rite" Co., Inc.

10th and Monroe St.

Newport, Ky.

BREMIL

The IMPROVED Compound Lever Shears

All-Alloy

- BLADES
- BOLTS
- LEVERS



**For Fast, Easy Cutting
On the Job . . . In the Shop**

ALL-ALLOY No. 2 cuts up to $\frac{1}{4}$ " steel plate.

ALL-ALLOY No. 1 cuts up to No. 11 gauge strip or sheet.

Your work will proceed faster and neater when you use Bremil All-Alloy Portable Shears on the job or in the shop.

LONG-LIFE BLADES—removable cutting blades are made from finest grade ALLOY (Shear Blade) Steel which has been properly heat treated, accurately machined and surface ground. Special blades available for cutting stainless steel.

WRITE TODAY FOR DESCRIPTIVE LITERATURE

BREMIL MANUFACTURING CO.

1800 Pittsburgh Avenue

ERIE, PA.

MORE PROFIT, LESS WORK WITH E-Z-ON DAMPER REGULATORS

Order from your Jobber

M. A. GERETT CORP.
MILWAUKEE 5, WISCONSIN

GLASBY UP-SIDE-DOWN FURNACE

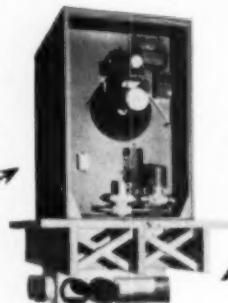
for Basementless Homes

Bungalows



APPROVED
GAS

Furnace
Above
Floor



Garden Apts.

COMPLIES
WITH
S.U.R.

Plenum
Below
Floor

Designed for Warm Air Radiant Convection
Heating Systems

Dealers write for information

J. P. Glasby Mfg. Co., Inc.
Belleville 9, N. J.

trance requirements, two inconsistent considerations must be recognized. On the one hand, the burden of administration and paper work make it desirable to limit participation to employees who are likely to remain on the company's payroll until retirement. The cost of paper work obviously runs up where the turnover is likely to be great because younger and newly employed people are included. If the plan is insured, this takes a large toll in surrender charges. For this reason, the age and service requirements for female employees, for example, may be set higher than for male.

Eligibility Factors

On the other hand, one of the important purposes of the pension plan is to effect a reduction in turnover. To accomplish this, eligibility requirements must be such that within a relatively short time, an employee will begin to feel that he is sacrificing valuable pension rights if he moves on to another job.

Here are some eligibility factors which may be used in constructing the pension plan:

1. Attainment of a minimum age (25 or 30—or 25 for men and 30 for women).
2. Completion of a specified length of service (one to five years).
3. A combination of age and length of service requirements under which the length of service requirement for participation is reduced as the age of an employee is increased. For example, employees under 30 may be ineligible until they complete five years of service; employees between 30 and 40 years of age may be ineligible until they have four years of service; employees 40 to 45 years of age may be eligible after three years of service, etc.
4. Some plans set a maximum age yet employees over the maximum age are generally those to whom a pension is most important, and it's usually bad personnel policy to exclude them. But in specific situations, the inclusion of a large number of employees near retirement age will make it impossible for a company to carry a pension plan at all. Such cost pressure may be best handled by reducing the scale of pension benefits for employees who reach retirement age before the company has had an opportunity to build up an adequate fund.
5. Participation may be restricted to office employees or those paid on a weekly basis rather than an hourly or commission rate.
6. Employees earning less than a minimum annual income, such as casual or temporary workers may be excluded. Or to approach it in another way, in determining whether employees have earned enough to qualify, commissions, bonuses, etc., may be excluded.

In deciding eligibility, there's no need to take a dogmatic approach. There's usually plenty of company experience that can serve as a guide. For instance, draw up a list of withdrawals over the past several years, by length of service and by age. Check the pattern to see where the bulk of withdrawals exists—from an age as well as service standpoint. Then you're in a position to set a realistic cut-off that eliminates the big turnover.

**WHITNEY METAL
TOOL COMPANY**
39 YEARS EXPERIENCE

WHITNEY-JENSEN

Nos. 1828,

1829, 1858, 1868

**DEEP THROAT
LEVER PUNCHES**

Powerful stored action develops tremendous punching power with little operator effort. Extremely versatile, suitable for a wide variety of work up to capacity. Deep throats facilitate working with large sheets.

CAPACITY

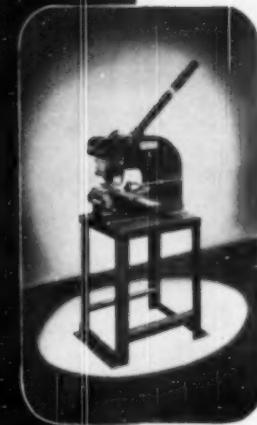
1/8" thru 3/16" or 1-1/2" thru 1/8" mild steel — 7-1/2 tons

THROAT DEPTHS

7", 10", 18", 24"

Send for Descriptive Catalog

WHITNEY METAL TOOL COMPANY
91 FORBES STREET, ROCKFORD, ILLINOIS



Completely Automatic Heat

spot or central

delivers up
to 85%
efficiency

low first
cost

sizes from
30,000 to
600,000
BTU per hr.

direct
fired

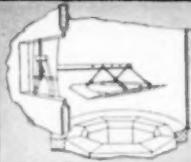
gas-oil-coal
or
dual gas-oil

heat any
size or type
of building

Olson

Get full information — write for catalog
ARTHUR A. OLSON CO., CANFIELD, OHIO

FOR Quality INSTALLATIONS



Boston Chrome Steel
"HANG-DOWN"
BAFFLE

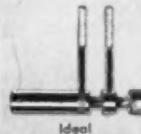


APTHORP
True Alignment
Oil Burner
Nozzle

BOSMACO



Instant-Glo
COMBUSTION CHAMBER



Ideal
NOZZLE EXTRACTOR



Clearview
OIL TANK GAUGE



The Boston Standard
DRAFT CONTROL



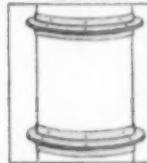
BOSMACO
APTHORP NOZZLE KIT

WRITE FOR COMPLETE INFORMATION

BOSTON MACHINE WORKS COMPANY

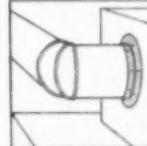
Oil Heating Supplies Division Manufacturers, Lynn, Mass.

**ANGLE RINGS
ROLLED TO SPECIFICATION!**



SMOKE STACKS

You can rely on our ability to furnish Leg Out ANGLE RINGS correctly rolled to specified size for use in smokestack construction. Bolt or rivet holes are accurately punched and spaced for quick and easy assembly.



VENTILATING DUCT LINES

We also roll Angle Rings in all sizes for round duct connections in air conditioning, heating and ventilating systems. All Rings correctly made to size—with a true circle and 90° angle. Furnished with or without bolt holes.



EXHAUST FANS

Angle Rings save time and money in the assembly of fans of all types. Provides a solid and firm reinforcement for fan units as illustrated. Built to fit your particular assembly in any quantity.

Write for list of stock sizes and discounts—also our illustrated circular describing our complete fabricating service.

NATIONAL METAL FABRICATORS

2140 S. Sawyer Ave.

Chicago 23, Ill.

ANCHOR

AIRE
OIL FURNACES

Ideal for Any Installation



• SELL FASTER . . .
• YIELD MORE PROFITS!

Today's trend toward utility rooms and one floor plan homes has presented a central heating problem that is easily, effectively solved with the amazing, new ANCHOR HI-BOY OIL FURNACE. For any first floor installation ANCHOR has the answer. Just as ANCHOR'S Lo-Boy is unequalled for basement installations.

You just can't beat ANCHOR OIL FURNACES for any installation. For faster sales . . . more profits. Join the ANCHOR "Parade of Profit" . . . write today for full facts and descriptive data about ANCHOR'S complete line of heating equipment. Anchor Division, Stratton & Terstege Co., Inc., P. O. Box 311, New Albany, Indiana.

LEADERS FOR OVER 85 YEARS

ANCHOR

American Finest Heating Equipment

★ ★ ★

... you will save time
and money on every
job because . . .

YOUNGSTOWN FITTINGS FIT!

There's no lost time in juggling or cutting to fit when you use Youngstown Fittings. Our production of pipe and fittings for gravity and winter air conditioning is planned and executed with a minuteness of detail to assure you a perfect fit every time.

Get 'em from your wholesaler on your next order . . . prove it for yourself!

. . . remember

YOUNGSTOWN FITTINGS FIT!

YOUNGSTOWN FURNACE CO.

627 Marshall Street

Youngstown, Ohio

★ ★ ★

Arnold Kruckman's Washington Letter—

(From page 78)

propaganda, espionage, subversion and sabotage, but also with shooting when the latter is considered necessary. I would be hesitant about measuring the hot or cold temperature of this struggle. An attack may now come with a warning measured in hours instead of years."

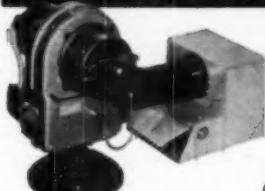
At a dinner given by the Committee for Economic Development, Paul Hoffman, in a notably impassioned speech, made no bones of the fact that war is an ever present menace, actively and uncertain. The fact is, probably, that back of the apparent hysteria there is a solid foundation of informed apprehension. You may get some of the sentiment among those close to the inner circles by the fact that it is not unusual for men of affairs to tell you they have made arrangements to move their families and to carry on some of their business in Mexico or in other Latin American countries. They wish to be prepared for all eventualities. It is curious that this greater tension has developed here for the first three weeks of May. It is reported here for what it is worth.

The recent tour we made, my wife and I, especially in New England, showed us that business people appear to feel the salvation of that area must rest on the establishment of a larger number of smaller business units. New England's textile mills have moved South. The great mills in the Lawrence and Lowell region stand idle. Naturally, many of the smaller mills, also, are idle. The shoe factories have scattered westward. Other industries which embraced varied and great manufacturing activity have shrunken. The fishing industry is localized and apparently has not been developed with great refrigeration facilities to expedite national distribution. New England's cities are mostly towns. The region is still the stronghold of the intimate smaller town. We attended several gatherings which in essence, were in the spirit of the old New England Town Meeting. They still serve the supper that goes with the Town Meeting.

New England is in the position of having many skilled artisans and skilled craftsmen. They are humanly and historically rooted in the soil. They have not moved with the industries. The problem is to bring out in New England a rerudescence of smaller industries which will absorb the services of this labor. Generally speaking, New England is what is known, in labor terms, as a distressed area. Overall, it is only mildly distressed; but in spots the distress runs to 55 per cent of unemployment. New England's chief industrial blockade is said to stem from a lack of power, and the high cost of power for industrial use. For this reason, the region is interested in the power projects proposed by the President, and particularly in its own great dream, Passamaquoddy. This project is located at the northeasternmost tip of Maine. The desolate little village is perched on the highland over the Bay of Fundy. This extraordinary body of water sometimes has a tide that piles up 53 feet high. The average tide, every six hours, has a crest varying from

HERE IS THE ANSWER!

A Combination OIL & GAS INSTALLATION



**Economical
Dependable
Completely
Automatic**



The Siemon Gas Burner can be installed with a new oil burner or added to any gun type oil burner installation. Combines gas with oil for economy and dependability—assures constant, plentiful supply of fuel at all times. Burns gas when supply is plentiful—Burns oil when gas supply is short. Write for literature and details.

SIEMON & CO. 1819 Holmes St., Kansas City 8, Mo.

today
PRICE
TALKS

ATH-A-NOR

And we mean it when we say we have the most interesting story. Ath-A-Nor furnaces are lowest priced brand name furnace you can buy. Ath-A-Nor quality has surpassed every set heating standard for over 50 years. Ath-A-Nor has more exclusive selling features including the famous Ath-A-Nor Air Blast.

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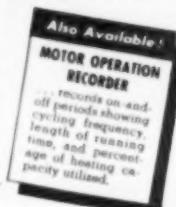
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The TEMPSCRIBE Temperature Recorder makes round-the-clock records that show highest and lowest temperature for 24 hours, temperature extremes, and frequency of temperature fluctuations. Compact, self-contained, no electrical connection, requires no watching.

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THE ORIGINAL ECONOMY FOOT POWER SHEAR



Capacity 86 to 52 inches. 18 ga. and lighter.

All steel welded construction, capacity to 18 ga. soft steel. Tap knife bar strongly braced and provided with adjustable bronze gibs to compensate for wear. Blades of highest grade tool steel tempered and carefully ground to give maximum service before regrinding. Adjustable front and rear gauges, quickly set for different sizes. Spring activated hold-down will clamp material firmly to the bed.

To Cut Material 36" Wide \$225.00
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All prices F.O.B. Chicago—Prompt Shipment
The New Economy 8" 16 gauge Hand Bending Brake Now Available for Prompt Shipment

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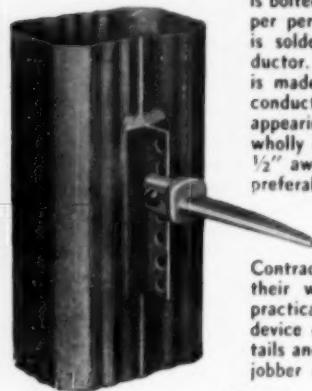
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Contractors who take pride in their work like to use this practical, durable, inexpensive device on their jobs. For details and list prices write your jobber or us.

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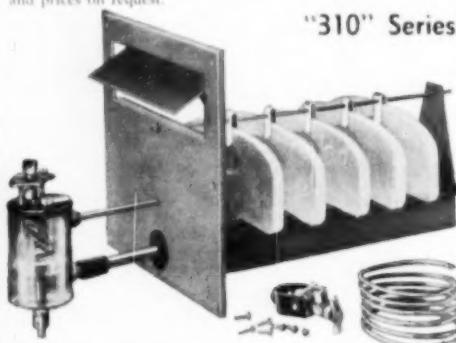
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The New "310" MONMOUTH FLOTROL Humidifier

• The "310" is designed for modern smaller furnaces and air conditioning units up to 100,000 BTU capacity. It is shipped completely assembled, and quickly installed from outside the furnace. Front plate includes combination plenum register and inspection door, is hinged to copper pan and fits vertical or slanting plenum. Register has pivot shut-off valve, and equals an 8 x 4 register in free area. The "310" has genuine Flotrol valve and Monite ceramic diffusing plates. Details and prices on request.

"310" Series



Also Standard Monmouth FLOTROL and MICRO-FEED Models.

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7802 Wade Park Avenue, Cleveland 3, Ohio

12 to 15 feet. It is proposed to use the water to fill a part of Passamaquoddy Bay, an estuary of the Bay of Fundy; the part to be used makes a vast reservoir which is kept filled by the tide which runs every six hours. Four dams are to be built; under the spillways of the dams there are to be located generators. As the water runs through the generators it is expected to create approximately 4 billion kilowatts of power per hour. The outflow running through the lower part of the Bay on the other side of the dam again goes into the ocean. It is anticipated the vast product of power not only will take care of all New England's needs but will supply electrical energy to a large part of northeastern Canada, and release power to other parts of the Eastern Seaboard of the United States. The plan originally was formulated by Dexter Cooper, a great engineer, who has since died. It was sponsored by the Federal Government, during the presidency of F.D.R. WPA funds, and other funds, totalling \$7 million were spent in making studies, in building one dam, and in erecting a village of over 300 buildings. With the war, the investigations, and the work was abandoned. A joint American-Canadian International Commission recently approved resumption. A bill was introduced in Congress providing the appropriation of \$4 million to start operations again. Socially and politically, the New Englanders are in favor of the development of Passamaquoddy. From the standpoint of economics and hydrologics, the leaders of the economy of New England are opposed. The various states which have their own power projects are interested in their own particular pet schemes. The several power companies of the New England area naturally do not wish to see a project brought into being which will make available a stupendous volume of electricity that inevitably will bring down the price of the commodity. The issue will undoubtedly become a great national subject of debate. Whatever happens in New England, obviously will have its immediate and strong effects upon all parts of the country and upon all parts of industry and the national economy. For this reason, it seems to us this bit of current history is important to the readers of the AMERICAN ARTISAN.

As you know, the President's Reorganization Plan No. 12, designed to eliminate General Counsel Denham of the NLRB, was overwhelmingly defeated by the Senate. Denham's job remains an independent part of the National Labor Relations Board's operation. Under the guidance of a man like Denham, the function of the office is a protection to industry. The question is what methods the President may adopt to remove Denham. It is also expected that Reorganization Plan No. 6, devised to place the Wage and Hour and Public Contracts Administration, and several other labor agencies under the control of the Secretary of Labor will be defeated. The effect of the adoption of Reorganization Plan No. 6 would have been to deprive management and employers of an impartial administration of the laws. The word among the Senators is that almost any proposal by the President for the rest of this session will fail. Neither the House nor the Senate are inclined to do any more legislating. In place of enacting laws, it is expected the various committees will hold hearings which will attract much attention. One House committee is expected to thor-

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Furnace Cleaner gets you into the basement and once there it's easy to sell your repair and replacement service—almost always there is such a job for you to do. Anybody can operate a Super. Cleans chimneys from the bottom up avoiding dangerous roofs. Super chimney cleaning tools are standard equipment. Try a Super 5 days free. Call your local supplies distributor, or write today and ask for our FREE sales promotion plan.

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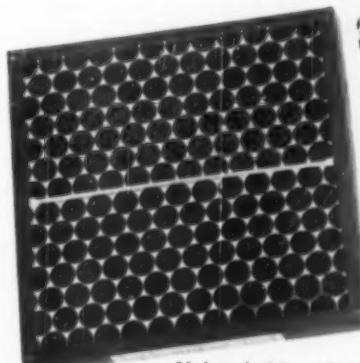
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- Unbreakable plastic filament
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**Oil or Gas Fired
Warm Air Conditioners**

Furnished complete, AGA approved. 57,000—142,500 BTU hr. input gas fired (illustrated). Lowboy, 85,000—200,000 BTU and Highboy, 85,000 BTU space saver oil fired.

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The Complete Line That Gets Sales Fast!

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CUT ANY SHAPE WITH A

BEVERLY

**IN METAL UP
TO $\frac{3}{16}$ " MILD**



With one Beverly Throatless Shear, you're equipped to make any cut in metal—straight, curved or irregular—faster, easier and more economically. Positive rake of the high grade tool steel blades produces neat, clean, burr-free cuts in any metal up to capacity. Made in 4 sizes to handle 18 ga. to $\frac{3}{16}$ " mild.

FEATURES:

- Compound leverage—easiest cutting in heaviest metals.
- Alloy steel rack and pinion for positive cutting control at all times.
- Exclusive shoulder design permits turning work at any point of the stroke.
- Interchangeable blades, adjustable for wear and re-sharpening.
- Alloy steel base eliminates distortion and misalignment of blades.
- High carbon, high chrome blades available for all models to handle stainless steel.

Diagram at right illustrates cuts made with a Beverly in light gauge metal.

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oughly explore lobbying, both Governmental and non-Governmental. Another committee will make a noisy study of the growth of monopolies, particularly investigating the steel industry and the newsprint industry. These investigations are conducted almost entirely by liberals.

There is a great deal of confidence in Washington in the probe that has been launched jointly by Senators Kefauver (D.Tenn.) and McCarthy (R.Wis.). The Congress has given them \$150 thousand to do the job. It will be a sweeping inquiry into all phases of crime, particularly as it affects industry and government. The McCarthy communist exploration is expected, not only to draw further damaging admissions from the Department of State in regard to personnel policies, but it has already brought out some very unpalatable facts about personnel policies in the Commerce Department. This department has allowed scores to resign without prejudice, but it also has admitted in Senate and House Hearings that some of its weak security risks absolutely refuse to resign. The Commerce Department is now confronted with the urgent need of getting rid of personnel which simply stands pat and will not go.

Senator Sparkman (D.Ala.), has been chosen as chairman of the Senate Small Business Committee. The committee has a very moderate fund to operate, but has virtually no power except that of survey and making reports. It is difficult to determine what it can do. We hear that in most of the larger cities the banks report that overdrafts have suddenly surprisingly increased. The overdrafts, however, average small amounts. The retail stores which sell nondurables report less business, while those which deal in durables, such as television sets, washing machines, refrigerators, and many things that go into the home, and which are bought on the installment plan, have large sales. Construction volume of dwellings is on the increase and has assumed enormous proportions. Industrial construction is constantly decreasing. Installment credit is expanding at such a rate that it is expected something may be done about it by the appropriate agencies of the Government. Wherever installment buying applies, business is extraordinarily good. Cash business does not seem to be quite as happy.

Air Washers—

(From page 85)

and is directed through four-way grilles, which make it possible to direct the air toward all operators. A 42 in. powered exhaust fan extracts the heat generated in this department.

The stereotype department is located at the rear of Section A. The heat generated by the melting pots in this area was removed by placing exhaust hoods directly over the melting pots, and venting these hoods through the rear windows of Section A.

Having removed from the building all internal heat, additional 10,000 cfm air washers and additional 42 in. exhaust fans were placed, so as to obtain an even flow of cool air throughout the balance of Sections A and B. The method of this supply distribution is indicated in Fig. 2.

In summation, then, we find that 12 10,000 cfm air

NEW STANDFORATED
MANUFACTURERS OF AIR METALS

"BEND-EZY" FORCED AIR REGISTERS and GRILLES

Smartly Styled... Efficiently
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The Standforated "Bend-Ezy" sidewall registers are stamped from sheet metal and have horizontal bendable bars, set at time of fabrication for 30 degree downward deflection. Each bar can be easily readjusted with a "Bend-Ezy" tool to any angle for upward, downward or straight flow.



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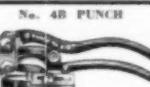
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PUNCHES



Length 8 1/2 inches. Capacity 1/8 inch through 16 gauge. Deep Throat — 2 inches. Weight—3 pounds. Punches and Dies—1/16" to 9/32" by 64ths.



Length—26 1/2 inches. Capacity—1/8 inch hole through 3/16-inch iron, especially adapted for button punching or template work. Punches and dies 1/16" to 9/32" by 32nds.

No. 91 PUNCH



CAPACITY

No. 1 PUNCH



Length — 23 inches. Capacity — 1/8 - 1 inch hole through 1/8 - 1 inch iron. Punches and dies in sizes from 1/8 to 9/16 by 64ths.

No. 2 PUNCH



Length — 23 inches. Capacity — 5/16-inch hole through 1/8 - 1 inch iron. Punches and dies in sizes 3/32" to 1/2-inch by 64ths.

CHANNEL IRON
PUNCH



Capacity to No. 2 Punch. Every part of the two punches interchangeable, including punches and dies. Capacity—1/4-inch hole through 1/4-inch iron.

W.A.



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AMERICAN ARTISAN, JUNE, 1950



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THE KENT DOUBLE SUCTION FURNACE CLEANER



gets the most from this profitable business

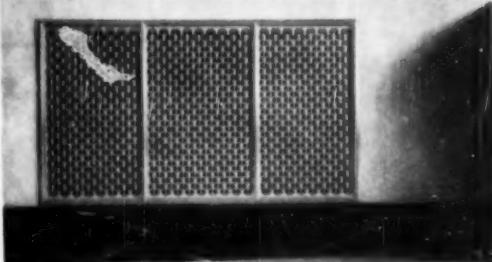
The sturdy, reliable KENT gives longer service with fewer breakdowns—this means profit! So do the leads you get for repair work and new installations! Compare KENT quality before you buy!

- Dust bag is inside—less chance of tearing!
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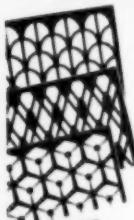
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You will find that H & K Grilles combine the ultimate in grille art with rugged protection and adequate air circulation for all purposes. Perforated in finely finished, unbreakable metal plates, these Grilles of harmonious beauty and richness will render years of enduring service.

A wide selection of distinguished modern and classical patterns is available in brass, bronze, steel, stainless steel, aluminum, monel, nickel silver and other metals.

There is practically no limitation to the size, shape or form of Grilles we can furnish. They may be rectangular, square, round or odd in shape and flat, curved or angular in form. Frames, louveres, invisible hand hole doors and registers can be furnished to meet exacting specifications.

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washers, handling slightly in excess of 124,000 cfm, coupled with the installation of 9 42 in. exhaust fans, provide uniform cooling throughout the entire plant. To avoid the possibility of the system becoming unbalanced, arrangements have been made with the plant owners to secure all windows along the outside wall of Section B at all times. Planned exhaust, therefore, assures complete balance at all times, and prevents the possibility of uncontrolled pressure within the plant, and undesirable humidity conditions. Further, we are assured, through adequate exhaust, that the internal heat, plus odors and toxic fumes, will not be spread throughout the general plant area.

Natural Gas—

(From page 94)

air temperatures than normal. It mixes this air with room air in a special wall cabinet in which room air is drawn and mixed by venturi action of the hot air.

The perimeter system shown in Fig. 4 is one of the several methods now being field tested by which air is used as a medium to heat floor panels. Other methods include the use of hollow tile under the entire floor area. Much of the success of the development of inexpensive satisfactory systems of this type depend for the most part on the ingenuity of the builder.

Gas is especially adaptable to these new heating methods since gas fired heating equipment is compact and versatile and can therefore contribute substantially to the successful realization of economical original heating systems.

On the other hand, the cleanliness, convenience and flexibility of gas fuel often encourages its abuse. Gas heating equipment is treated as no one would dare treat solid or liquid fuel equipment. This is particularly so with respect to accessibility, air supply and venting of gas furnaces in small, basementless houses. Unless these requirements of the system are carefully engineered there may result a great deal of inconvenience, contamination by combustion products, or condensation deposits on house surfaces—in other words property and personal damage. Therefore let us glance at certain fundamentals of aeration and venting.

AIR SUPPLY

A. In a tight house a positive supply of outside air must be provided in order to:

1. Sustain complete combustion of the fuel
2. Dissipate humidity and odors; prevent condensation
3. Avoid negative pressures (created by kitchen exhaust fan or active fireplace) liable to reverse chimney action.

B. Outside air supply must be carefully engineered:

1. To avoid cold drafts
2. To insure positive ventilation independent of wind pressure (intakes from more than one exposure).

C. Furnace room must not be used as a return plenum.

VENTING FUNDAMENTALS

A. Draft hood must be installed in the same room or enclosure as the furnace; its relief opening must be at the same atmospheric pressure. Otherwise, proper downdraft relief will fail.

truly **TIME-TESTED**



STANDARD PEAR SHAPED — PACKAGE UNIT
Everything included in wooden box for complete installation



Write for
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ROUND—
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TINNERS FIRE-POT

The HANDI-HEAT Fire-Pot has been designed to furnish time-saving, low-operating-cost features for sheet metal applications. Its design combines burner, fire-pot and torch into a single unit. Interchangeable fuel tanks are sold outright in 5, 11 or 20 pound capacities, for flexibility in meeting individual job requirements. All fittings have I.C.C. approval. It's the fire-pot you need for fast, on-the-job heat when you want it most. Please write us today for literature.



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Problems in repair parts are our specialty. We know how much prompt service on hard to get items mean to you, so we've trained our staff to fill each and every order, large or small, with a minimum of lost time.

You can be sure that we can solve your repair part problem for you quickly. If you're not a regular customer now send us a trial order... we'll show you how easy and quick ordering from Northwestern can be.

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The name that symbolizes all that is best in automatic oil burner controls



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It maintains a home or shop comfort at any desired temperature. It operates on a variation of 10° above or below the point set in. It is a precision instrument, built to exacting standards. It performs perfectly for years without any service attention. It is a masterpiece of mechanical precision, design and assurance.

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IT'S ALL IN
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MOUNTINGS AVAILABLE

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TRIANGLE MANUFACTURING CO.
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... cuts any
size - - shape

- QUICKER
- EASIER
- BETTER

With capacity up to $\frac{1}{4}$ inch stock and cutting speed to six feet per minute, this shear really performs at high rate of efficiency. For irregular cutting or straight splitting this shear is your logical choice. Available in hand operated or motorized models. Prompt shipment. Send today for special illustrated bulletin.

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- B. The utility room, if small, must have adequate relief openings to other spaces capable of absorbing down-draft.
- C. Chimney or flue must be protected from excessive thermal losses. Totally external chimneys or uninsulated flues exposed to unheated spaces (attics) are sources of serious trouble.
- D. The chimney must be protected from the effect of wind pressures; must extend high enough over adjacent objects to be outside high static pressure zones.
- E. The chimney and flue system should have a minimum of frictional resistance, must be smoothly lined, never pitch downward and contain a minimum of fittings and horizontal runs.
- F. The chimney or flue must be thermally separated from combustible building material.
- G. The chimney or flue must be corrosion resistant.
- H. The chimney or flue must be solidly erected and supported.
- I. The chimney or flue must have adequate capacity to handle the rated output of the furnace plus other appliances requiring venting.

The matters of aeration and venting, fortunately, are being attacked scientifically today and good progress is in evidence. Fig. 5 graphically illustrates the latest AGA recommendations for installation of gas furnaces in small rooms or compartments and indicates how aeration and venting can be accomplished.

In addition to residential heating, there is another field rapidly developing in Washington—gas heat for large commercial establishments. As stated earlier, an

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You can put furnace cleaning on a money making basis by using a Grand Rapids Furnace Cleaner. High velocity suction scoops up all deposits of soot, ash and carbon, cleaning the heating plant and re-establishing full efficiency. Special attachments clean flues, radiators, tight angle turns and other hard-to-reach areas. The job is done quickly and completely. Customers are highly satisfied.

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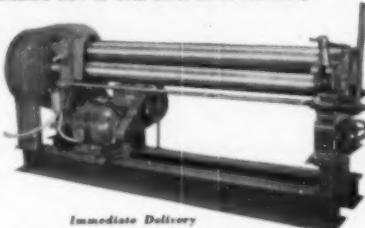
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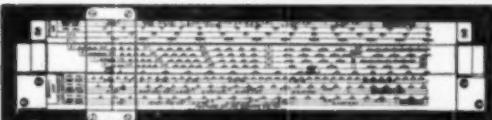
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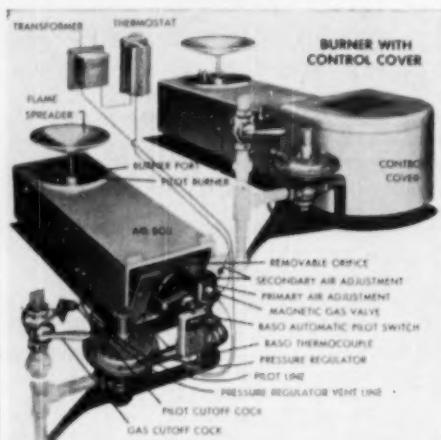


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Stainless Steel—

(From page 103)

grease, dirt, and fingermarks. If scouring is necessary, stainless steel wool should be used. Rinse the surface with cold water.

Standard Products

The following paragraphs describe accepted standard forms and dimensions for stock items of stainless steel roof drainage equipment:

Gutter: Standard type single head lap joint and single head slip joints, sizes 4 to 10 in., cut to 10 ft lengths, are usually carried as stock. Eight standard gutter shapes are made.

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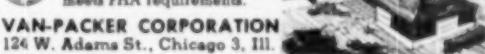
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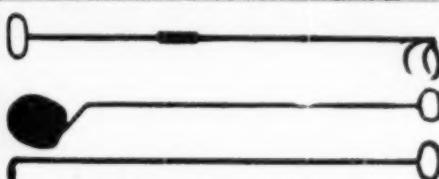


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ALSO SEE PAGE 177

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(From page 110)

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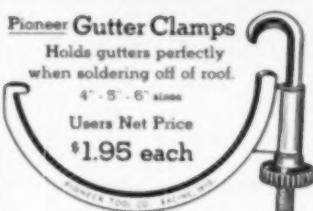


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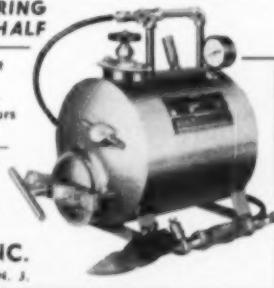
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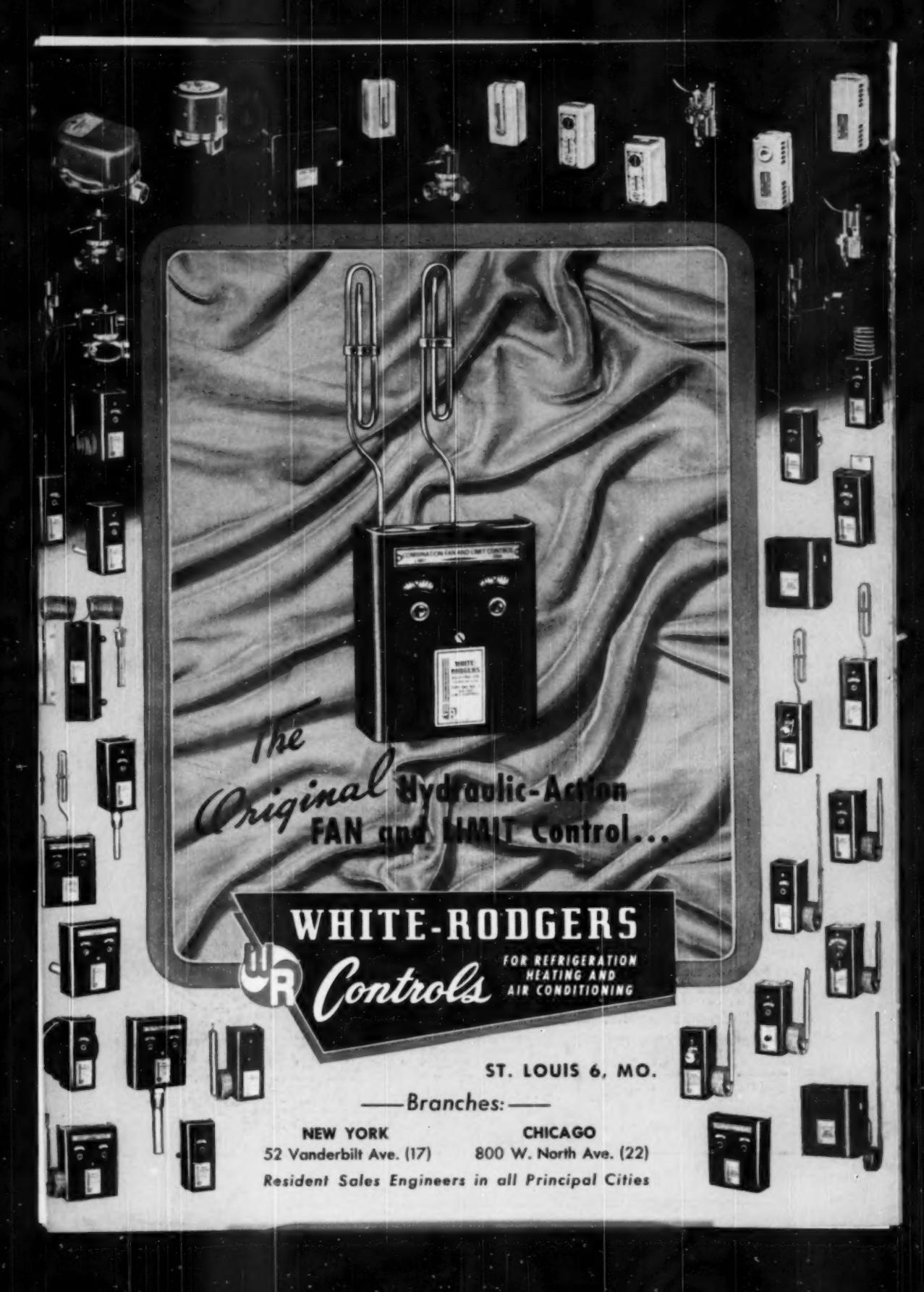
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